Ricoh Aficio MP1350

| 135ppm Monochrome |
| Print ▪ Copy ▪ Scan |

100% Independent Analysis

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At 135-ppm, Ricoh's new Aficio MP1350 adds a further 30-ppm to Ricoh's high volume production top speed. Ricoh users will recognize the MP1350 as being similar in build and stature as the Aficio 2105, which was the third generation Ricoh production MFP.

While the 1st and 2nd generation light production products showed jumps in functionality, feature set and production capabilities since the introduction of the Aficio 850 many years ago, the MP1350 in BERTL's opinion is the biggest single generation advance in Ricoh's light production history.

The list of new features, options, and new third party partners that have been added to the MP1350, and its sister products, the MP1100 (110-ppm) and MP9000 (90-ppm) is impressive.

The product is still, in BERTL's opinion sitting in a variety of potential market places. On the one hand, its relatively low price point, small footprint/ppm ratio, and wide multifunctional feature set means that it can still be considered as a front office workhorse.

However, with a choice of powerful EFI Fiery or MicroPress print workflow and processing options, GBC StreamPunch III, 13″ x 18″ media support, Plockmatic production class engine speed booklet-making facilities including square-edge bind, up to 6,500 sheet 13″ x 18″ online paper capacity and twin cover inserters all place the MP1350 in the high volume production bracket.

BERTL analysts during their first evaluation of the MP1350 were provided with this device equipped with Ricoh's own embedded print controller. This controller is clearly designed to accommodate the front office user and workflow demands rather than those in a light production, CRD or quick printer environment.

For that reason, BERTL's first evaluation of the Ricoh MP1350 will be written from the analytical perspective of the front office environment where a wide feature set needs to be user friendly and priced based on delivering a wide range of documents for the general office environment.

BERTL will be revisiting the MP1350 shortly, carrying out a second evaluation of the device from a CRD/quick printer light production perspective, with the device this time equipped with the EFI Fiery and/or MicroPress processing and workflow capabilities.

Device Features Summary	
Monochrome Engine Speed	135-ppm
Color Engine Speed	Not Applicable
First Copy Out Mono	3.0 sec.
First Copy Out Color	Not Applicable
Warm Up Time	Less than 360 seconds
Maximum Monthly Volume	1,000,000
Copy	Standard
Print	Optional
PSTN Fax	No
Internet/Network Fax	No
TWAIN Scan	Optional
Network Scan	Optional

During the next evaluation, BERTL's analysts will be scrutinizing the device within a productivity and image quality standpoint from the back office buyer's perspective.

Over the course of its initial testing, BERTL analysts put the Ricoh Aficio MP1350 through its paces with a wide range of vertical sector workflow scenarios from both desktop and walk up applications ranging from simple text only Word files to high resolution PDF files and complex architectural CAD planning projects. Scanning came under great scrutiny with productivity, functionality, and data capture accuracy from a real world OCR perspective. All have come under review.

Market Background Information:
Paper handling is a core requirement of every device. If a device cannot create documents a user wants on the paper they need, it does not matter how fast the print engine is, or how many pages it can produce in a month.

Paper handling comes down to three key attributes: weight, capacity, and size.

Weight
The majority of paper used in general circulation is graded between 20 lb. bond/80gsm and 28 lb. bond/105gsm. If a device cannot handle these weights through the main paper sources, users are forced to use the low capacity bypass tray. This results in a higher user intervention rate.

The straight paper path of the bypass tray lets it handle heavier paper stocks to create business cards, covers for reports, product brochures, menus, tickets, programs, and other special documents. Paper weights for this type of job usually start at 90 lb. index/163gsm with business card stocks often weighing more at 110 lb. index/200gsm.

Capacity
To reduce user intervention rates on long print runs, departmental and production devices come with higher standard paper capacity than the lower speed, lower volume workgroup devices. Devices with 3,000- to 4,000-sheet capacity as standard are commonplace, with some offering extensive upgrades of 7,000 to 8,000 sheets.

A device's maximum capacity (without increasing the device footprint) depends upon the paper source configuration. Standard paper trays typically are universal or adjustable trays that can accommodate a wide range of paper supplies. Paper upgrade options on some devices include additional universal trays or a high-capacity tandem drawer.

A tandem drawer maximizes letter capacity by accommodating dual stacks of paper side-by-side. However, larger-sized paper supplies cannot be loaded. To raise capacity even further, some units can be equipped with a side-mounted large capacity unit. These trays are usually limited to letter sized paper supplies only.

Size
Letter size paper is used in the majority of day-to-day business operations. Legal and financial documents often are printed on the longer legal (8.5″ x 14″) stock size. However, some environments also rely heavily on the larger ledger sizes for printing spreadsheets, schematics,

Paper Handling: Input Features Summary	
Standard Paper Capacity	3,000 sheets
Maximum Paper Capacity	8,050 sheets
Bypass Tray Capacity	500 sheets
Maximum Paper Size (bypass)	13″ x 18″
Maximum Paper Size (main trays)	13″ x 18″
Min/Max Paper Weight (bypass)	16 lb Bond / 110 lb Index
Min/Max Paper Weight (main trays)	16 lb Bond / 110 lb Index
Standard Legal Capacity	1,000 sheets
Maximum Legal Capacity	5,500 sheets
Standard Ledger Capacity	1,000 sheets
Maximum Ledger Capacity	5,500 sheets
Standard Paper Sources	3
Maximum Paper Sources	7
Post Process Insertion (PPI)	Optional, Dual Tray
PPI Capacity	2 x 200 sheets

design layouts, plans, and for copying books or magazines.

Save Service Click Charges

Users with front office devices usually get charged a service click as part of the lease agreement. This click doubles when printing on ledger paper. However, due to their large volumes, production environments often pay the same click charge for ledger as they do letter. For that reason, many production departments print two letter documents onto one ledger-sized paper and guillotine the sets offline. This reduces service costs by as much as 50 percent. As such, many production buyers will be looking for high ledger capacity units to maximize this opportunity.
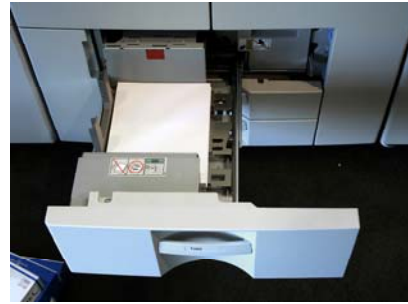
Reloading Paper Supplies

The main tandem unit on the device is easy to reload with users dropping in up to two reams of media into each side of the unit with ease.

BERTL analysts were impressed by the build and design of the universal drawers in the LCT modules. They were solidly constructed and easy to use and refill. To adjust in one direction (the long edge) users release a locking lever found to the right of the metal paper guide. Once released, users can slide the guide plate stopping at any position where the plate can then be locked again. The other direction guide can also be adjusted easily with a sliding guide and green color coded handles. To avoid guide movement during long print runs, the sliding guides can be locked in place using green color coded twist screws. BERTL prefers the rail design that Ricoh has adopted rather than the precut guides that some competing units use. This slide is faster, allows for a wider range of custom stocks, and met with BERTL analysts' standards.
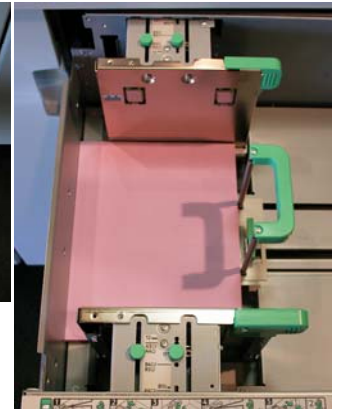
BERTL was also pleased to see that opening the paper decks is now facilitated via a handle that can be gripped from above or below. This makes the process easier than the bottom gripping design of previous generation products.

Above: Tandem 2 x 1,000 sheet paper feed unit with one side loaded and one side being reloaded

Right: Large capacity tray loaded with letter-sized colored card stock

WHAT WE LIKED:

- The Ability to reload one side of the tandem drawer while the other side is loaded and feeding paper into the run allows other media sources to be used for other stocks.

- Ejection of unwanted tab sheets allows companies to bulk purchase one tab set stock rather than order tab sets that depend upon the job, thus allowing a wider range of front office documents to be printed on demand with less opportunity for user errors.

- The support for legal and ledger media supplies allows longer uninterrupted print runs of non letter documents to be carried out. This can be an important consideration for some vertical and horizontal sector markets such as legal, government, architectural, marketing departments, and manufacturing.

- The twin unit cover inserter capability extends document production capabilities of the device beyond that offered by some high end departmental MFP products.

- Handles on drawers can now be gripped from above and below, making reloading easier.

- The well designed paper guide adjustment system allows users to quickly and accurately change media types and guides in a multi-user, mixed workflow environment.

- The tray settings feature displays an overview of all paper drawer, pre-defined settings.

WHAT WE WOULD LIKE TO SEE:

- Support for coated stocks would allow the device to be used for overprinting, pre-printed offset shell template sheets.

Market Background Information:

The paper output handling options can range from duplex output to saddle-stitch booklet making capabilities. Many devices offer a choice of finishers providing a low cost, minimum footprint solution, or a high-capacity, fully-featured solution.

Stapling

Departmental and light production class devices should offer finishers with at least 50-sheet capabilities with some offering 100-sheet capabilities. They can usually handle corner and double stapling. Saddle-stitch heads up the finishing capabilities, allowing users to create folded, center-stapled booklets.

Offset Output and Offline finishing

All light production devices offer offset stacking (where each set is offset from the next) to make it easier to separate jobs. In addition to offline stacking, front office devices offer a diverse range of finishing capabilities. This creates a one-stop document creation solution.

While many production devices offer extensive inline finishing features, many production environments use offline dedicated finishing solutions. This leaves the print devices to just focus on creating the printed sheets. In this workflow, the stacking becomes more critical with production buyers looking for tight document alignment. So, sets can be picked up and loaded into the finisher unit

Paper Handling: Output /Finishing Features Summary	
Maximum Output Capacity	3,500 sheets
Duplex Capability	Standard
Maximum Paper Weight Through Duplex Unit	80 lb cover
Maximum Stapling Capacity	100 sheets
Maximum Booklet/Saddle-stitch Capacity	30 sheets (120 page booklet)
Hole Punch Options	GBC StreamPunch III, which offers CombBind, ColorCoil, VeloBind, WireBind and Pro-Click punch dies, 3-hole
Physical Mail Bin Option	Not Available
Folding Options	Z-fold, V-fold (booklet)

Finishing Options

The Ricoh Aficio MP1350 comes with a wealth of finishing and document output options. A 3,000 sheet finisher with 100-sheet, multi-position stapling will be the option added to the vast majority of units. In addition, the device can be equipped with a Plockmatic saddle-stitch booklet-maker, a Z-fold unit (that allows legal and ledger stocks to be incorporated into letter-sized documents), a twin cover inserter (for including pre-printed materials after the fusing process) and the GBC StreamPunch III inline, multi-die set professional punch unit.

Finisher Productivity

There was minimal slowdown when workflow was switched from standard simplex to duplex or single corner staple modes. Dual stapling added a slight delay, with saddle-stitch adding a further delay but neither should be regarded as significant and are better than the results we have seen from some competing units. The Z-fold feature had a significant effect on through ledger engine speed, which dropped by 42 percent.

Document Finishing Impact on Productivity

Time to Completion in Seconds
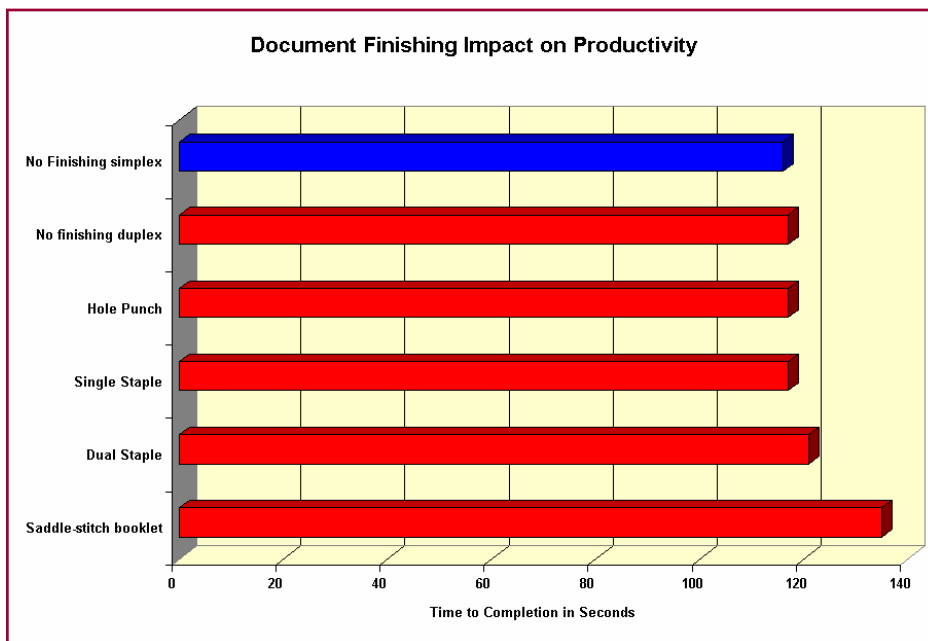
WHAT WE LIKED:

- Extensive finishing options offer front office buyers a wealth of inline finishing capabilities, plus easy one step production ready for offline bindery.

- The inline GBC StreamPunch III option offers a great way to reduce printing footprint and costs versus a dedicated offline punch unit.

- The dual 200-sheet cover inserter allows pre-printed materials such as color covers, delicate materials, and other sources into a document. This bypasses the high temperature fusing unit. The added ability to incorporate these preprinted stocks anywhere in the document (versus being limited to covers only as found on some rival units) further extends the range of documents that the device offers users, in contrast to rival devices.

- The Z-fold option allows ledger-sized documents to be folded and bound into a letter-sized document in a flush format. This is a useful feature that allows documents that incorporate financial spreadsheets, engineering plans, maps and large scale diagrams, schematics, etc., to be included within a bound letter sized document workflow.

- The ability to create saddle-stitch documents from letter/legal and ledger paper stocks sets this device apart from some competitors who are limited to letter and ledger and omit legal media sizes, which is a weakness in vertical sectors such as education and religious institutions who create a lot of the larger legal-sized booklets rather than pay the double click for ledger.

WHAT WE WOULD LIKE TO SEE:

- If the finishing unit was able to independently process printed materials from other printing devices in the office such as color desktop printers (using the post process insertion unit as the input feed source), users would get more mileage out of their investment. This is a feature offered on several rival devices.

- There should be a more versatile folding option that could create tri-fold documents for insertion into C10 mailing envelopes or a gatefold for the production of brochures and other marketing materials.

- An inline perfect binding solution allows users to create on-demand manuals, school resource books, government reports, and other large documents.

![info icon] **Market Background Information:**
Workgroup devices sold through retail and traditional IT distribution outlets usually are maintained by office workers changing the all-in-one cartridge units that encase the entire imaging system. Units sold through the reseller/dealer community are usually maintained by office workers and trained service engineers. Separate long-life parts are more complex to install, but offer lower running costs than the low yield, all-in-one alternatives.

Toner Replacement
Changing the toner or imaging cartridge is a necessary task that traditionally is avoided by some for fear of the black dust leaking on clothes or hands. However, most units today offer clean replacement of toner supplies.

Clearing Paper Jams
The main device issue that office users attempt to remedy themselves with is the occasional paper jam. As a general rule, the faster the device engine and the more paper handling options, the more complex the process of removing a paper jam is.

Common jam sources come from the duplex unit and poor loading of paper supplies. The position of the duplex unit can be a major factor in the ease of paper jams and the method of loading paper supplies can be a factor in the overall number of jams that occur.

Maintenance Features Summary	
Toner Yield	60,000 @ 6%
Drum Life	2,000,000 images
Fuser Life	Info Not Available
Developer Life	500,000
Toner Refill During Printing	Yes
End-user replaceable drum unit	Yes (for TCRU customers only)
End-user replaceable fuser unit	Yes (for TCRU customers only)

WHAT WE LIKED:

- The paper jam removal process was well illustrated with an active moving display on the large touch screen. This walks the user through each step.

- Refilling the toner was easy to carry out and there were no spills.

- Toner refilling on the fly, courtesy of dual toner supplies, results in fewer downtimes and offers flexibility to buyers looking to place the device in a high volume environment.

- The visible red indicator light identifies when the device is offline and in need of attention. This reduces downtime.

- The SmartDeviceMonitor Cluster mode can be set up to automatically reroute jobs away from a device undergoing routing maintenance. This prevents bottlenecks from building up.

WHAT WE WOULD LIKE TO SEE:

- A more simplified jam removal process with fewer jam points would save time.

Paper Jam Removal

The complex paper path on the Ricoh Aficio MP1350 makes paper jam removal a multi-stage process and often requires multiple sheets to be removed from around the device paper path.

The instructions provided on the large color touch screen are well laid out, with moving displays that walk the user through each step of the process. Each area within the device was well labeled and easy to access and lead to no mishaps during jam removal testing.

There is also an illustrated jam removal guidance list on the inside of the engine doors, which was useful. It allowed BERTL analysts to remove jams without having to repeatedly get up and study the top mounted touch screen, which was not be easily visible while accessing the paper path.
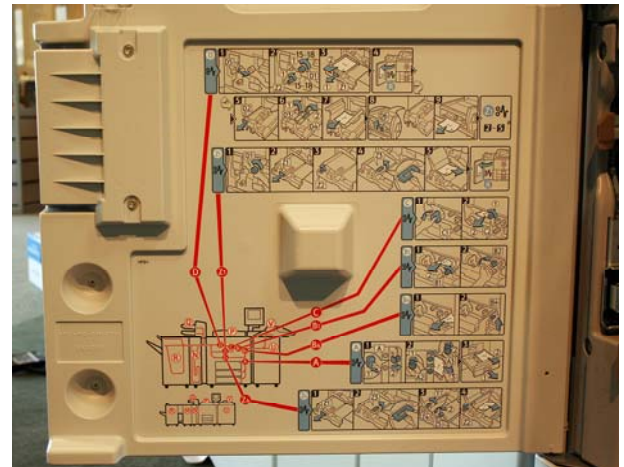
Toner Replacement Process

Dual toner supplies are accessed from a small panel to the side of the main engine access doors. The access door to the toner refilling points can be opened without disrupting the printing process.

The dual toner supply allows for long uninterrupted printing and allows for refilling on the fly during a print run.

Users simply press in the green tab to release the toner bottle, then turn the bottle to remove it from the unit. The toner exit door is positioned at the top of the bottle upon removal, thus avoiding chances of spillage that could result from any latent toner left in the bottle.

The new bottle is first shaken, protective packaging removed, then inserted into the vacant toner bottle location and twisted until locked in place.

BERTL analysts found the process to be mess-free.

Market Background Information:
An efficient device management backbone is needed to take maximum advantage of the feature set within a device, be it a printer, fax, scanner, or multi-functional product.

Device management is commonly-supported through a Web server on the device controller. This Web server is accessed using any desktop Internet browser. The user simply enters the IP address of the device into the URL address line.

General Office Users

Administrators and office users have different management and monitoring needs. End users want to know if a device is capable of handling a job, supply levels, and a list of jobs already committed to print.

For MFPs with document storage and communications capabilities, end users also need desktop management of print on demand, stored document viewing (to check print on demand files or incoming faxes), and for the more advanced, the creation of scan-to-email or scan-to-file destination templates.

Administrators

An office or network manager looks for greater control over the device functionality and setup without leaving their desk. They may be looking to manage network setup, establish security for IP filter ranges, apply cost control measures, check supply levels, and set up automated email alerts to different staff members when problems occur.

Due to the nature of the Web server, this capability is usually limited to an individual device. Many manufacturers also include a network device management fleet tool, which allows for the monitoring and management of multiple devices around the network concurrently. Many also provide plug-ins to the most popular IT device management utilities to ensure that the maximum amount of information can be relayed from their device to the third-party application.

Ricoh's Device Management Utilities

Ricoh provides a selection of device management applications for use with the Ricoh Aficio MP1350 and other digital imaging products in its range. These include:

- WebImageMonitor
- SmartDeviceMonitor
- WebSmartDeviceMonitor
- @Remote
- WebJetAdmin Plugin (supported but with limited features)

BERTL analysts did not review the WebSmartDeviceMonitor, @Remote Fleet or HP WebJetAdmin Plug-In utilities and has restricted its commentary to the first two utilities listed above with more of a focus on the WebImageMonitor.

WHAT WE LIKED:

- The WebImageMonitor provides the same common interface and feature set as found on other Ricoh MFP devices. This is a major advantage to the adminIT department who can navigate and manage devices across an entire fleet easily.

- The queue manager provides a full list of print jobs including page and set quantities. This gives desktop users a good feel for the print workflow lined up for processing.

- Design of the device management interface from both the desktop and walk up panel are very user friendly, allowing for quick efficient maintenance and management.

- Well-designed and user-friendly device management from the walk up touch screen interface allows users to quickly view, reorder, and delete jobs in the queue.

- The print on demand functionality (Document Server) is well managed through the WebImageMonitor.

- Address book and scan profiles can be easily set up.

WHAT WE WOULD LIKE TO SEE:

- The ability to pause a job in the queue from desktop or device touch screen would allow administrators to check on a job before releasing it.

Status Monitoring

The status tab provided all the pertinent status factors of the device at a glance. However, there is no indicator of likely page yields remaining based on current coverage patterns.

Job Queue Reporting

The Admin mode in WebImageMonitor includes the option to change the order of jobs and to delete jobs. These functions are not available to desktop users, but can be accessed using the walk up touch screen panel.

Walk up and desktop queue management allows multiple jobs to be deleted at once. This allows administrators to quickly remove jobs that have been sent repeatedly.

From the touch screen panel, users can also view the jobs in progress and can view a time of completion. Job lists were divided into copy/document server and printer. However users could also display the entire job queue as a single list by choosing Job Order, which now displayed the queue with all functions in their processing order.

We were pleased to see that users could select and delete multiple jobs in a single step, a feature that some devices do not offer, instead of forcing administrators to delete surplus jobs one at a time when bottlenecks occur.
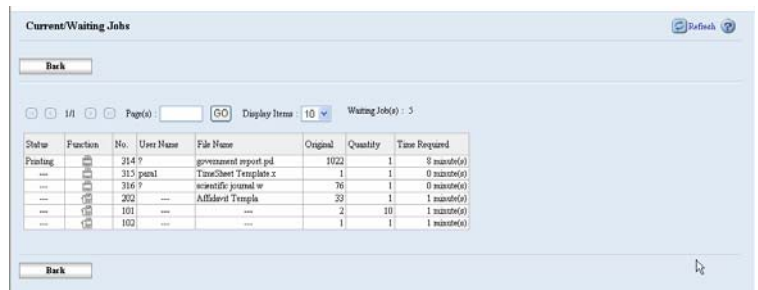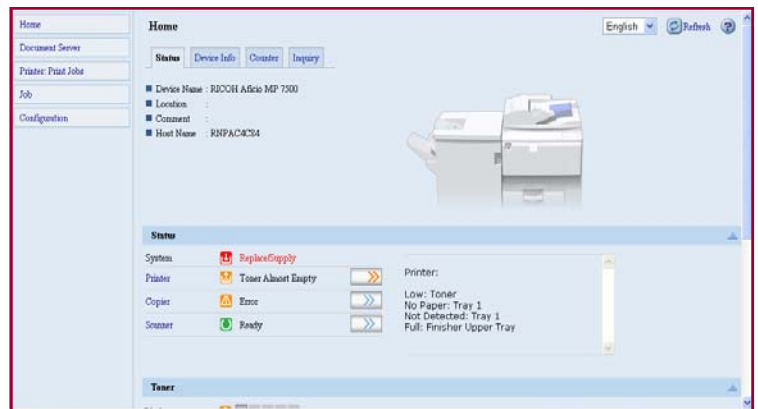
Above: Queue monitoring from the desktop.
Below: Job monitoring from the walk up touch screen.

Security Settings

Extensive security measures available for the Ricoh Aficio MP1350 can all be administered using the WebImageMonitor. Administrators and IT support staff have a fast, intuitive method to safeguard the device and information flowing through it. See more information on security measures in the Security section later in this report.
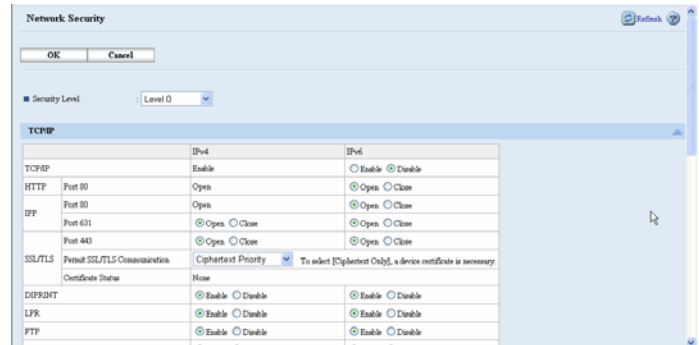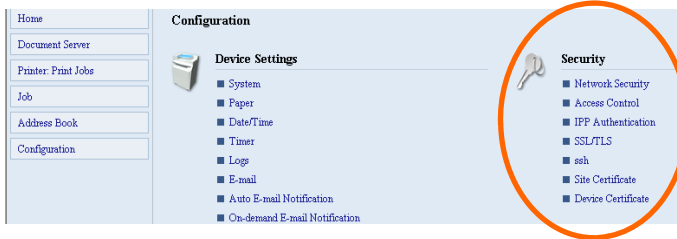
Network protocols and ports can be switched on and off as required.
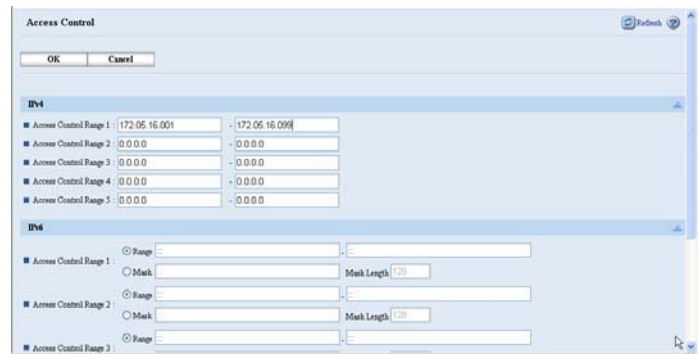
IPv4 and six filters can be set up to limit access.
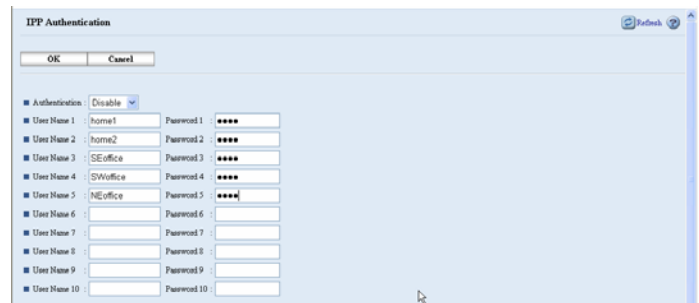
Up to 10 remote IPP user names can be set up.
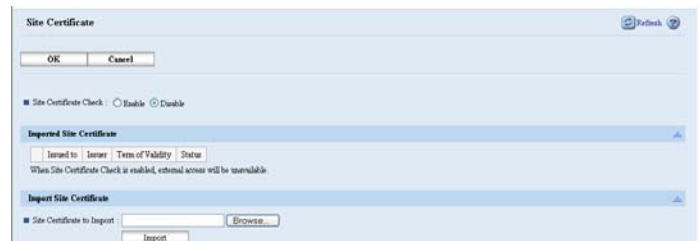
Digital certificates can be stored for secure communications.

Address Book Management

Administrators and end users can easily set up the Address Book by using the Web browser or the touch screen interface.

Setting up new addresses is faster and more accurate than rival devices because of the large touch screen, integration with email-shared address books, and SMB browsing capabilities. Each entry can be associated with up to three sub-address book fast access filters (an alphabetic filter like a pop-up phone address book), plus two one-touch number subsets (1 to 5 and 1 to 10). This, along with the extensive search capabilities, makes the communication process of the Ricoh Aficio MP1350 very efficient.

Scan Templates

Scan templates are set up within the address book feature. Users can set up scan-to-file templates using SMB, FTP, and NCP protocols. SMB is further facilitated by the use of a browser utility, allowing network novice users to browse to their folder of choice without having to know the network path. This can offer valuable time-saving opportunities to users setting up their own unique scan-to-desktop destinations.

Cost Control Reporting

Cost control is another strong, standard feature of the device. Administrators can specify which features are cost-controlled and which are not. Users are set up with their personal permission levels in address book functions within the Administrator mode.

A wide range of authentication and user accounting options can be set including local or multiple centralized systems like LDAP, AD, NDS, etc. Administrators cannot set limits within the standard cost control system. To achieve this level of control, users must upgrade to the PCSM module.
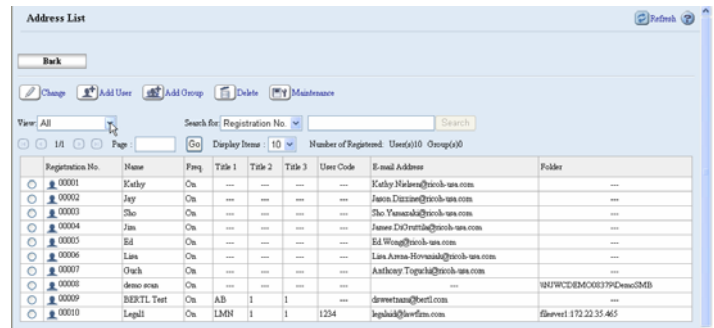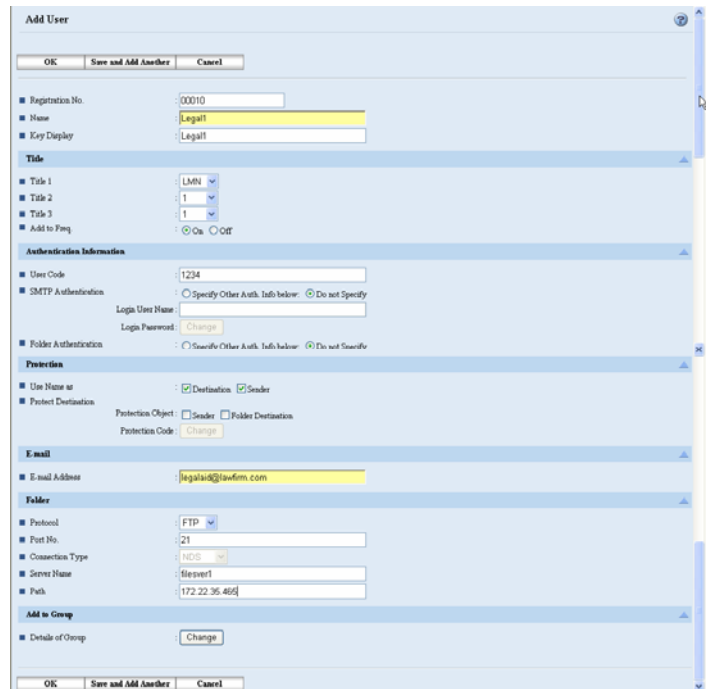
Email Notification Alerts

The WebImageMonitor gives administrators the ability to set up four separate email list groups. This can be used to inform the most relevant party when issues arise at the device. BERTL set up three email notification groups: a local administrator for non-technical routine maintenance tasks, IT support for technical problems, and purchasing when supplies run low.
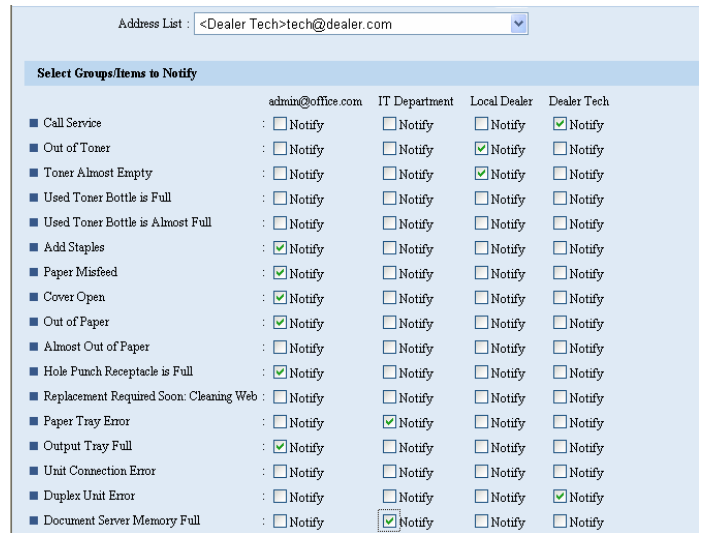
Job Log Management

The job log can be viewed from the WebImageMonitor and from the touch screen. The job directory is split into Copy, Print, and Document Server/remote scan directories. This is a useful split, which allows managers to view device dynamics and likely cost structure.
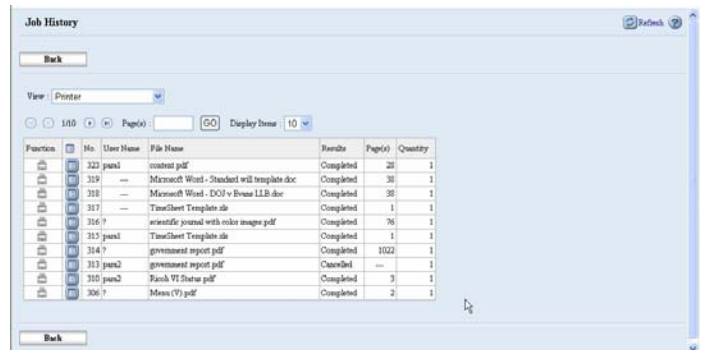
Market Background Information:
High-tech security is never out of the news, with reports of information theft and hacking making headlines. By the very nature of their development, network printers and MFPs are security risks if not managed correctly.

Advanced network connectivity options open ports to hackers. Industry-standard Java and Web browser design elements are vulnerable to virus attack. Large hard drives store a latent copy of every document flowing through the device data for years. Devices link directly to core network components such as the LDAP address list or the central file server. Plus, fast communication options let insiders send information to the outside with no method of being traced.

Security and data compliance buzzwords and regulations such as Common Criteria (CC) certification, HIPAA, Gramm Leach Bliley, FERPA, SEC, FSMA, and the Patriot Act look to safeguard information and force companies to conform to best practices in document and data security management.

Safeguarding Data
Most MFPs now offer a standard or optional hard drive. Any company dealing in critical, sensitive information should determine if they need a data overwrite capability that has passed Common Criteria certification. Data overwrite deletes information on the hard drive by writing a series of random ones and zeros over the sectors storing data, usually multiple times. The CC test relates to how data is deleted from a device's hard drive after being used. It is carried out by a government-approved test facility. Many manufacturers get this certification to satisfy government security requirements, and it is a requisite for many government agencies and contractors. Most MFP devices pass evaluation assurance level (EAL) 2 with some aiming higher at EAL 3. The higher the level and the more extensive the testing, the more secure the security features are deemed.

Controlling Access
One of the keys to security is limiting the initial access to the device both remotely and at the device itself. TCP/IP and MAC filtering allow the administrator to limit remote access to the device. MAC filtering is more secure. The TCP/IP address can be copied, but the MAC address is a fixed specification that cannot be changed.

IPv6 is now becoming commonplace on network devices. IPv6 makes it harder to crack or hack into a PC address range by making the address more complex.

Security Features Summary	
Hard Drive Overwrite	Optional
Removable Hard Drive	Optional
Private Print	Standard
Encrypted Print	Optional
Secure Fax	Not Applicable
Encrypted PDF Send	Standard
Network Authentication	Standard
LDAP Authentication	Standard
Kerberos Authentication	No
SNMP v3.0	Standard
IPv6	Standard
SSL	Standard
IP Filtering	Standard (IPv4 and 6)
MAC Filtering	No

Network authentication is now available on nearly every MFP and printer, forcing users to enter a user name and password before access to the device is granted. Most devices can verify a user by linking to Windows Exchange user lists, Novell network user lists, and LDAP server lists.

There should also be password encryption at the point of the login process through SSL or other encryption. Or, there should be other security technology (such as Kerberos) preventing hackers from watching and capturing user names and IDs as they travel over the network.

Secure Transmissions
The hard drive (if not equipped with a data overwrite capability) provides the ability to create secure repositories for incoming print and fax jobs. Instead of being printed upon delivery, print jobs and faxes can be stored on the device and printed only after a PIN has been entered by the authorized user. IPv6 makes it harder to crack or hack into a PC address range by making the address more complex.

WHAT WE LIKED:

- Extensive user authentication capabilities restrict access to the device across all disciplines as required.

- Secure print send capability is standard with the ability to reprint multiple secure/locked documents in a single step from the touch screen control panel while some competitors force one-by-one selection.

- Secure scan transmission with encrypted PDF capability prevents intercepted scan-to operations from being opened and deciphered.

- Advanced levels of permission for documents stored on the document server and attachments sent in Scan mode includes read/write levels and the ability to deliver a low resolution save-only version.

- Up to 10 individual IPP users can be set up, providing secured remote printing capability for remote users.

- SNMP v3, IPv6 support, protocol/port lockdown, and IP filtering support reduce opportunities for would be hackers to gain access to the network through the MFP.

- With the Background Numbering in Copy mode, unique copies of confidential documents distributed at meetings can be signed out to each participant. Document leaks are then easy to trace back to the original recipient.

- The Unauthorized Copy mode within the print driver allows printed documents to be produced with a background that generates a security notice when copied. Set up is similar to creating a watermark.

- To speed up authentication, Ricoh has included a Login/ Logout button on the control panel.

WHAT WE WOULD LIKE TO SEE:

- Biometrics—for either user authentication and/or secure print/fax queue release—would provide added security.

- The Unauthorized Copy mode would be beneficial from auto detection, so documents could be blocked. An email identifying the users could be sent automatically to security.

- The automatic inclusion of the User code or authentication stamp onto any document with unauthorized copy stamp would track the document back to the creator.

- The Secure Print mode hides the name of jobs even when it is released and processing. At present, when a locked print job has been released, any user can view the name of the file being processed from both the walk up queue display or from the desktop using the Web server.

- The ability for the authorized sender to view the names of their locked (secure) print jobs would be more efficient than having to blindly release all jobs.

- Users would benefit from the ability to tie in active directory authentication to a user specific digital certificate stored in the active directory profile for scan to email functionality.

Market Background Information: In the U.S., Section 508 legislation prohibits government agencies from purchasing devices that are not accessible to those with physical impairments. For this reason—and the corporate world's increased focus on delivering a better work environment for all—user-friendly features for physically-impaired users are considered more often.

Common design features include tilting control panels, which give wheelchair-bound users a better view of the screen and larger display options for those with impaired vision. Voice navigation and Braille also are becoming increasingly popular. Easy access to the paper path for jam removal or front access to toner supplies make a device more user-friendly to all.

User Accessibility to Device Controls

Despite having a top mounted panel on a swivel stand, access to the wheelchair user was good with easy access and viewing of the touch screen and hard key panel. Ricoh also includes a simplified display option where only the major features are displayed as large icons for easier use by the visually impaired.

User Accessibility for Paper Refilling

Paper refilling was easy for a wheelchair user to handle. The drawers have handles that can be gripped from above and below, making low to the ground drawers easier to reach. The LCT units are also front loading, which makes access easier.

User Accessibility for Paper Jam Removal

The paper path is complex and could cause problems for a wheelchair user or someone with motor skill disabilities.

WHAT WE LIKED:

- Paper refilling was easily achieved from all sources.

- Touch screen was easy to see with large icons making navigation easy.

- The simplified display made using the touch screen interface easier for the visually impaired.

WHAT WE WOULD LIKE TO SEE:

- A voice-activated system that could guide the visually impaired through the menu system would be a great value add with the hard key buttons making the device even more Section 508 friendly.

- Short paper path would make jam removal more accessible to all.

Market Background Information:
Copying is the standard feature on every MFP on the market and is increasingly being offered either as an option or a separate model within network printer product ranges. Before being wowed by headline speeds and advanced features, consider that the most common copy job is a single set of a simplex document that is five pages or less with no finishing and no changes to image quality default settings.

Small, Simple Jobs
Despite the wealth of features that MFPs offer today, most users will not be prepared to wade through countless screen menus to get to the point where they can press the Start button. Think in terms of human productivity, not device productivity. Reporting the productivity of the device from the moment the green start button is pressed until the final page comes out does not consider the most costly element in the copying process: the user's time.

Large, Complex Jobs
Even for big jobs—where you may think engine speed plays a larger role—the simple start-key-to-finish-line productivity measurement approach again disregards the user. The user is less likely to wait at the copier for larger and more complex jobs. They will look for features such as a quick and easy job setup menu, fast scanning (so they can return to their desk with the originals faster), email notification when the job has finished (eliminating the guesswork of when to return to the device to collect the job), or the ability to build a job using a mix of pages scanned from the document feeder and platen.

Features or Benefits?
Many copy features that are overlooked by the masses are critical time savers in niche workflow environments. For example, medical offices or car dealerships need to copy insurance and license cards. A card copy feature allows the user to scan the first side of the card, turn the card over, scan the second page, and produce a single-sided copy with both sides of the card on the single sheet. This saves 50 percent on paper and the print click cost charged by the dealer.

Copier Concurrency
Concurrency, the ability to handle multiple tasks at the same time, varies greatly in workgroup devices. Some devices cannot accept a copy job while a print or copy job is in progress. If a connected MFP is carrying out either job, a walk-up user must wait for it to finish before they can scan in their copy.

Copy Features Summary	
Maximum Copy Speed	135-ppm
First Copy Out Time	3.0 seconds
Document Feeder Type	Automatic Reversing Document Feeder
Document Feeder Capacity	100 sheets
Job Build	Standard
Job Build Combining Platen and Document Feeder Scans	Standard
Scan Ahead Copy Memories	20
No. of Copy Job Programs	25
Customizable One-touch Buttons on Home Screen	Yes, 6
Max/Min Zoom Ratio	25% - 400%
Cover Insertion	Standard
Sheet Insertion	Standard
Page Stamp Options	Date, Time, Watermark, Set Numbering, Overlay, Bates

My Copier
MFP design is moving away from proprietary, closed systems, and is embracing open architecture and IT standards like .NET and Java. This opens the door to greater flexibility in the way the walk-up experience can be tailored to each user. Coupled to this ability is the growing need to account for all device usage for security, compliance, or cost considerations. These two trends can result in a "My Copier"-type experience where each user is greeted with their favorite settings when logging in.

WHAT WE LIKED:

- The user-friendly interface provides both experienced and novice users with a quick and easy method to build copy jobs with many of the most commonly-used features on the opening screen. In addition, up to six unique, one-touch buttons bring common applications within a single finger press.

- Mixed size original scanning mode suffered from a much lower slow down (compared to default auto-size detect) than some competing units.

- Image quality was to a high level for general office work across a wide range of document types with even mid grayscales reproduced to a good level.

- We liked the extensive batch job build capabilities including the ability to change media sizes, original type, and reduction/enlargement.

- There is a wide range of document production capabilities including extensive page stamping features, including one for bates type numbering applications.

- A simplified display makes navigation of basic functions even easier and faster and aids those with disabilities.

- The Unauthorized Copy prevention mode that adds a watermark when second generation copies are attempted, rendering the copied documents useless, is helpful.

WHAT WE WOULD LIKE TO SEE:

- Using the saddle stitch function can be confusing to first time/occasional users.

- Users cannot choose cover and insert/designate media supplies ad hoc during the job production process.

- Users are not able to customize the copy opening panel on a user- by-user basis (identified via authentication step).

- Reversing document feeder design results in productivity decrease when working with double-sided originals.

Touch Screen Selections Required for Commonly-used Copy Functions	
Corner Staple	1 step
Hole Punch	1 step
Enlarge to 200%	2 steps (can be made 1 step)
2:2	2 steps (can be made 1 step)
Photo Mode	1 step
Mixed Original	2 steps (can be made 1 step)
Cover Mode (printed front cover on bypass supply)	2 steps (can be made 1 step)

Copy Scan To Memory Productivity (letter-sized originals)

Mixed Original Productivity in Copy Mode
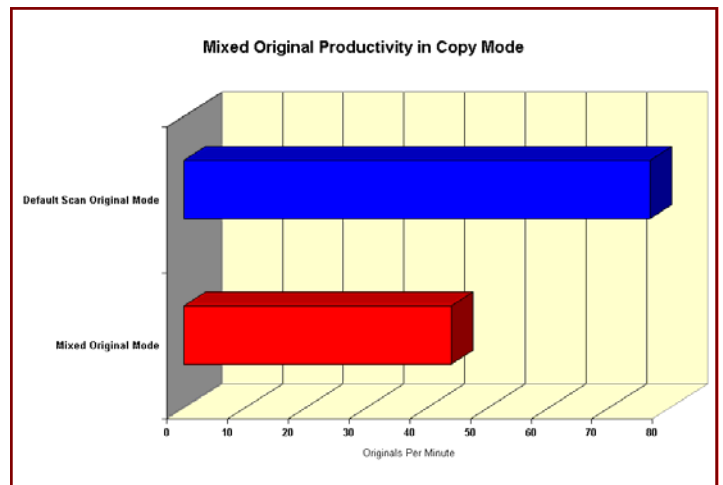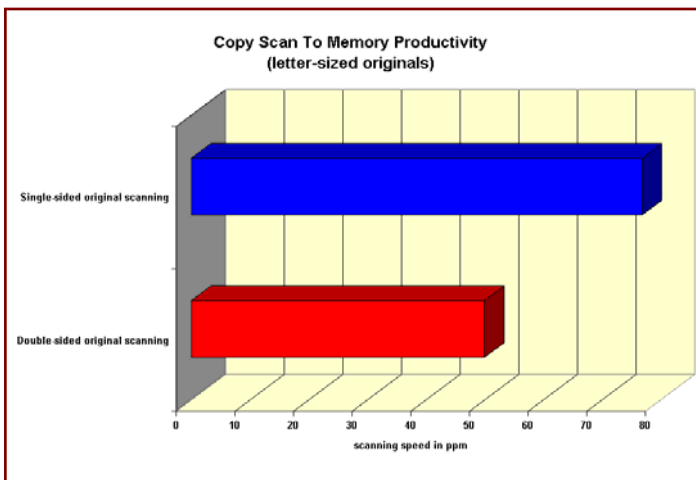
Image Quality

The image quality from the Ricoh Aficio MP1350 was to a high standard across a wide range of document types using Text, Text/Photo, and Photo modes.

This is in part due to the 4-bit CCD scanning technology in the color scanning enabled document feeder. This allows a better quality data capture than devices that are monochrome data capture restricted.

The most striking difference was in the Photo mode. This is normally an algorithm limited to half tone photographic reproduction with fine lines, text, and printed images suffering from poor reproduction due to the halftone screen data capture employed.

As the images and discussion highlight, the output from the Ricoh Aficio MP1350 in Photo mode was to a good standard across all document types and as expected surpassed other copy scanning algorithms when processing photographs.

Such is the quality of the Photo mode output that BERTL would recommend as the Default mode in environments where photographic reproduction plays a major part, resulting in more one-touch, walk-up workflow.
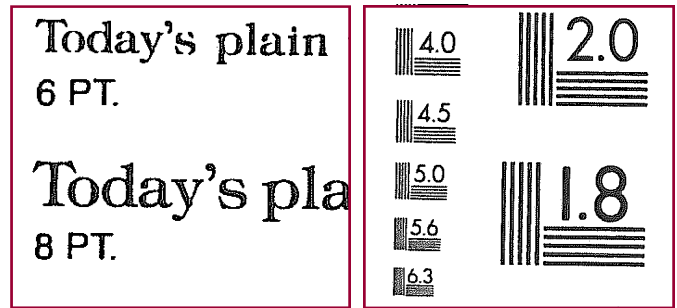
Text: Fonts were well reproduced down to 4 point. Fine lines were also reproduced well down to a reasonable level for most users.
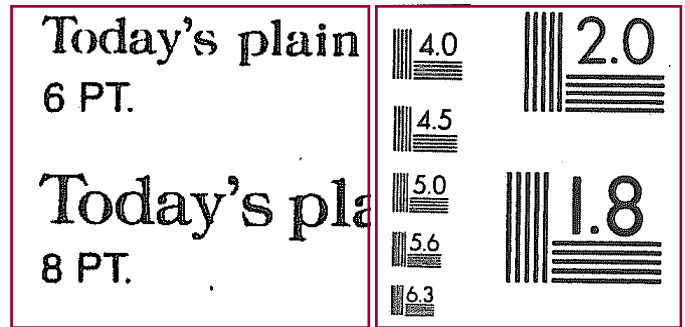
Text/Photo: Fonts and fine lines were reproduced very well

Photo: These are some of the best text and fine line reproductions BERTL analysts have seen to date with crisp lines down to very fine details and none of the breaking up that is commonly seen in Photo mode on competing units. Only the very finest fine line patterns started to break up a little and then only to the trained eye.

Copy

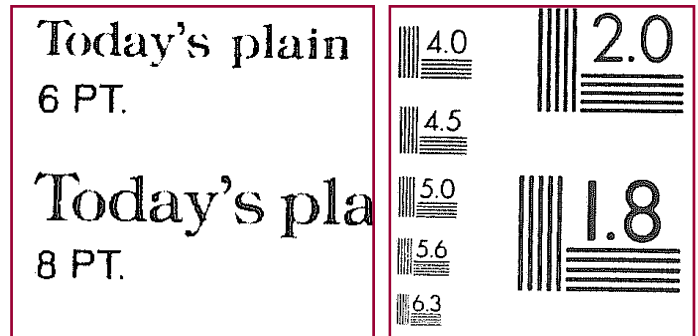## Image Quality (continued)
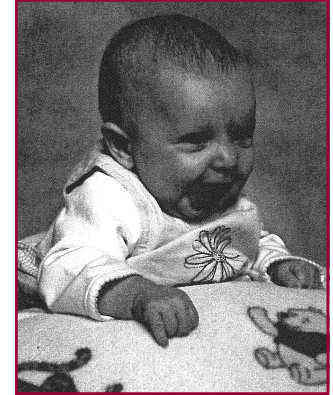
Text : Reproduction of the map was high quality with interpretations of color being well reproduced and a high degree of legibility in fine text and detailing. The photograph of the house lost some of the fine detail in the roof, foliage, and brickwork due in part to being slightly over dark. The portrait photograph was overlay dark and detail was lost.
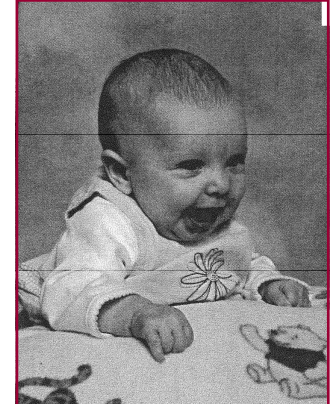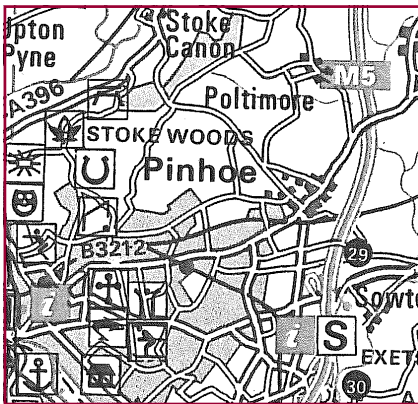
Text/Photo: The map reproduced well with interpretations of color well reproduced in gray. The photograph of the house was reproduced better than Text mode with more detail being captured and only the most subtle shades losing some detail. The portrait was a little grainy, but to an acceptable standard with a lot more detail than Text mode.
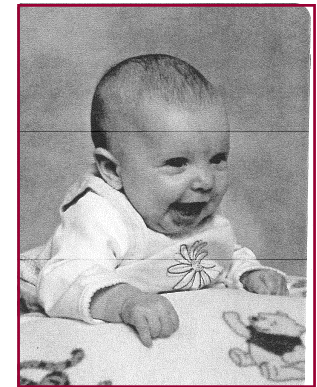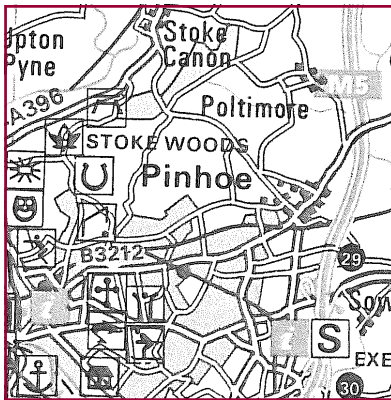
Photo Mode: Again Photo mode surprised BERTL analysts delivering a good reproduction of the map with details clearly definable. The repro-duction of the house and portrait delivered the best quality as expected with good contrasts even in subtle shade areas and a realistic skin tone on the portrait.

Market Background Information:
Ever since MFPs started including hard drives, manufacturers have looked for ways to offer more and more on-demand document facilities.

The most basic is the ability to store a document on the device for instant reprinting from the walk-up interface. Virtually all manufacturers offer this level of print-on-demand capability. Most allow users to store, copy, and print. Some also include scan and fax documents into the mix.

Are All Documents the Same?

The way different document function types are stored and the way in which they can be reused at a later date create some issues due to the file format in which the function operates. Copy is usually done in a compressed proprietary format, fax in TIFF, and scan in TIFF/PDF or JPEG as selected by the user.

When users look to reuse the files, they are often limited to the same function as it was created in.

Do All Devices Offer the Same Capabilities?

There is much differentiation between products and manufacturers in this area. Those interested in print on demand should look carefully at the functionality offered by each manufacturer.

Areas of differentiation include the range of finishing or output control the user can place upon a reprint-on-demand job; whether more than one stored job can be combined and treated as a single print file; the ability to view, manage and share stored documents using desktop applications; the complexity of the filing system in place; and the ease at which users can search for documents.

The Future

Increasing security concerns may result in more companies using data overwrite kits. This would put an end to the print-on-demand capability of such devices. For those still looking for a fast reprint capability, the answer may be external media ports such as USB memory sticks, digital camera SD cards, or volatile memory storage.

Ricoh has been an innovator and leader in the field of print on demand in MFPs for many years, ever since the introduction of its Document Server technology. The Document Server takes advantage of the large hard drive storage facility providing walk up, desktop, and remote users with the ability to store documents for future use.

While some manufacturers are introducing their first print-on-demand capability, Ricoh is now several generations deep into print on demand. This is a factor that shows as soon as you start to use the feature.

Documents can be stored in any of the four core functions of the device: Copy, Print, Document Server, and Scan. The Copy and Print modes store documents in a proprietary image format that allow the files to be reprinted at the device. The documents cannot be forwarded or scanned to other destinations unless they are converted from the proprietary file format with Ricoh's file format converter.

Scan, however, stores documents in industry standard TIFF and PDF that allows the files to be forwarded instantly either by a walk-up user or a desktop user. This valuable feature allows commonly used large documents to be sent out without the user having to reprocess the document. This saves time and money.

Documents can be stored with 1) a generic name generated by an automated naming convention by the device itself, 2) a name entered by the user at the time of saving using the QWERTY keypad. Files stored on Document Server can also be renamed at any time after storage using the Web Image Server or DeskTopBinder utilities. Documents can also be stored with a user name, further aiding the search process. Users are unable to store documents with finishing attributes within Document Server. Instead, they must add the finishing features to the job when they choose to reprint the file.

Documents can be viewed and reprinted using the large color touch screen or can be viewed and reprinted from the desktop using either the WebImageMonitor or Ricoh's desktop utility DeskTopBinder. From any of these access points, users can view thumbnails of the images, thus eliminating printing the wrong document. This is a risk with generic file format processes.

Document Server also allows users to merge multiple documents together to create a single print job that can be printed with finishing applications. Users are even able to create multi-document batch workflows (see batch printing for more details). Permission levels can also be applied to individual documents providing users with no access, read only, or edit capabilities as required.

Document Server from Control Panel

From the control panel, walk-up users can view document thumb-nails or view lists of files stored in the Document Server. To check if the document is correct prior to printing, the Ricoh Aficio MP1350 also includes a full document Pre-view mode with zoom capability. This is a feature that BERTL has been asking for since Ricoh intro-duced its Document Server technology many years ago. Needless to say, we were delighted to see its emergence, allowing users to see the fine detail of any page in a stored file. This is a valuable and differentiating feature offered on the device.

Multiple documents can be combined into a single print file with full finishing and document production capabilities.

Document Server from Printer Driver

From the printer driver, desktop users can route files directly into the Document Server.
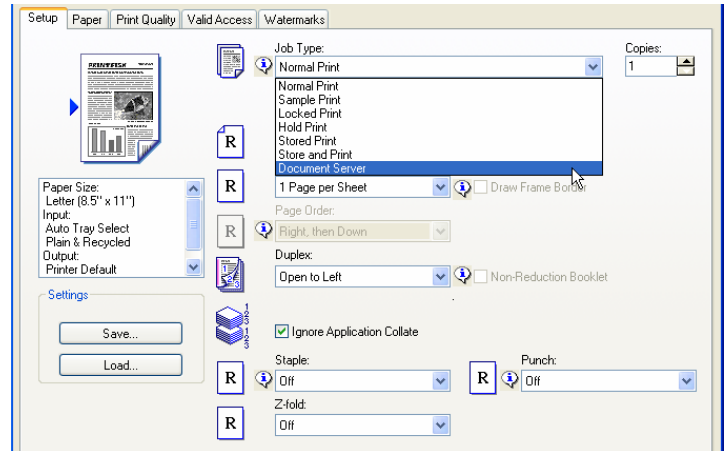
Users can add personal details to documents during the storage process.
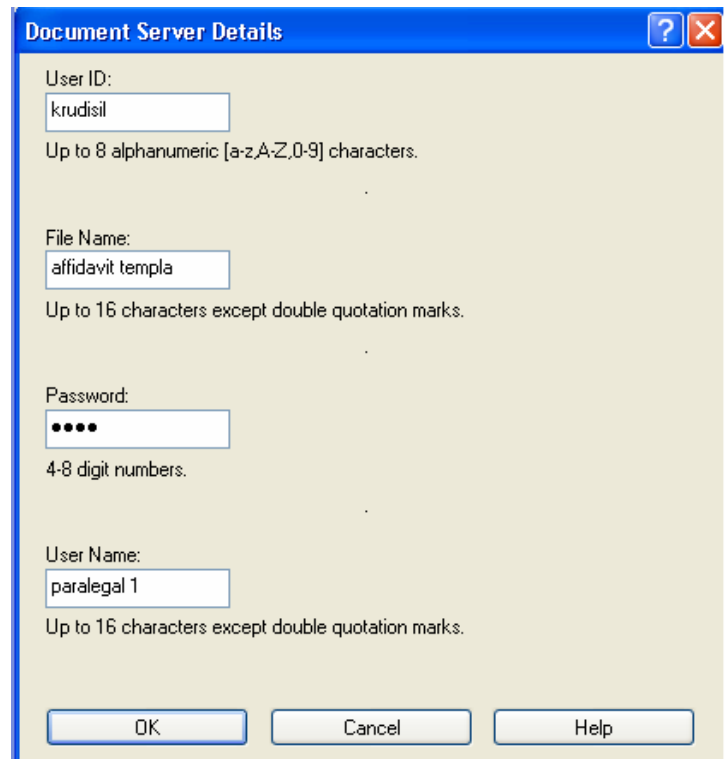
Document Server from Web Browser

Desktop users can view stored documents using the WebImageMonitor and can search documents by file, user name, or by date stored.

Desktop users can print one or more jobs, taking advantage of the full printing functionality of the device. While multiple jobs can be sent to print as a batch, all are treated as a single job. There is no method of treating them as a single task, but separate documents.
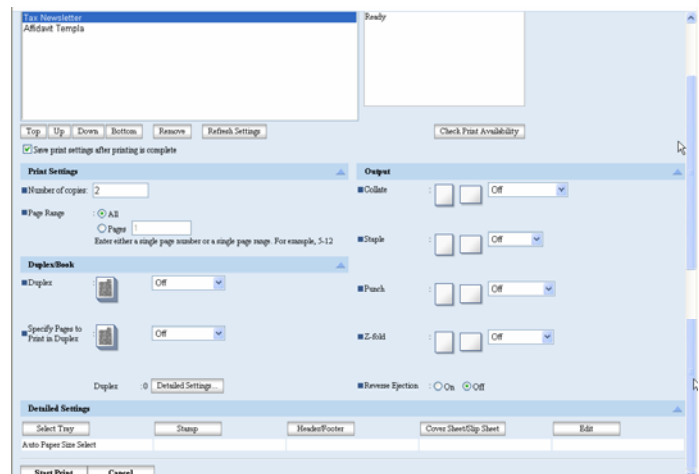
Users can also send documents directly to a new destination using the communication capabilities of the device. Multiple destinations and multiple delivery types can be merged into a single workflow process. Only documents stored via the scan feature can be routed in this way.
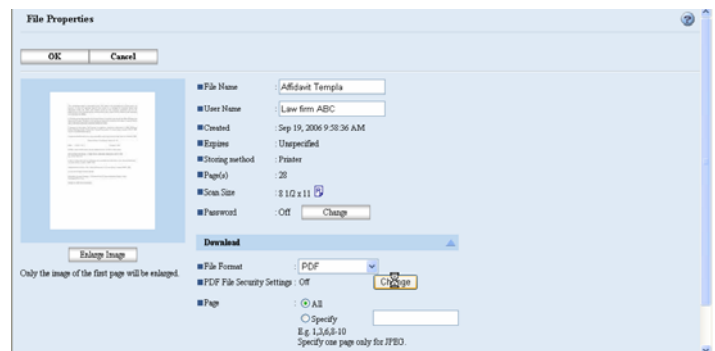
Security can be added to documents stored on Document Server, preventing unauthorized viewing of thumbnail views, printing, download, and even editing rights when the document is downloaded.
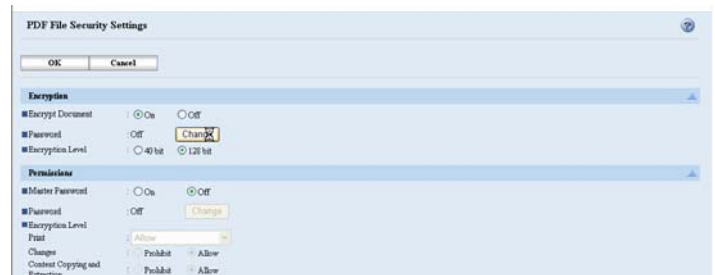
WHAT WE LIKED:

- Viewing documents either from the desktop or from the touch screen as with zoom-in capabilities is a valuable feature. The user can read the document data prior to printing, reducing errors when documents are stored without personal naming convention.

- Combining multiple files into a single job can make multi-author tasks easier to manage.

- Attaching documents stored in the Document Server to outgoing communications can be a valuable time-saver. The walk-up user only has to scan in a personalized, accompanying letter rather than having to scan the entire document.

- Permission of documents allows the time saving functionality of print on demand to be used without jeopardizing security or confidentiality of information.

- Sophisticated search and retrieve functionality, including the ability to filter by user name, makes finding documents in heavily used repositories faster than some rival devices.

WHAT WE WOULD LIKE TO SEE:

- The ability to create personal folders within the Document Server rather than using the flat storage design would aid in organization.

- Productivity would be increased by adding the ability to create collated batch jobs from Document Server where a selection of documents are printed as a batch set, but are treated as individual pieces that should be finished in isolation.

- The ability to include finishing and document production attributes to the file during save removes the time consuming need for users to enter finishing details every time a job is reprinted.

- Documents stored on the Document Server from the Print or Copy functions must be pulled to the desktop using the File Convert utility, and it must be resaved and resubmitted prior to being scanned to different destinations. The ability to directly route copy and print stored documents to scan destinations would add functionality.

- Editing capabilities such as touch up, text addition, redaction, or highlighter using the touch screen interface would allow users to make quick, ad hoc changes to a stored file before reprinting or sending.

- Print on demand from portable media sources like USB memory sticks or SD cards is a useful feature that lets walk-up users take advantage of the device in airport terminals, hotel business lounges, or Internet cafes.

Market Background Information:
Print has replaced copy as the primary method of creating output years ago. To limit costs and raise integration between functions, more multifunction products use a single processor board for copy, print, and scan functions.

Connectivity
The vast majority of devices include Ethernet and USB connectivity out of the box; some include parallel connections. In addition, most devices offer a selection of optional connectivity choices like Wireless 802.11b or g (g is the faster, preferred standard.), Bluetooth for connection to cell phones or PDAs, and FireWire for high speed local connectivity.

PDLs
PCL is the de facto printer description language (PDL) of choice provided by all suppliers. Some bundle in PostScript (PS) while others charge for an upgrade. A few manufacturers also include their own PDL, which is based loosely on the old Windows/GDI printing technology. These Windows or GDI drivers often offer significant productivity advantages over traditional PCL/PS drivers since the bulk of the processing is handled by the more powerful desktop PC rather than the less well-equipped printer processor itself.

Productivity
Judging print productivity is an inexact science at best or misleading at worst. Factors such as processor power, memory capabilities, spool and RIPping efficiency, engine throughput speed, RIP while printing capabilities, and more all play a major part. Most devices fair better from some of these factors than others, and different workflows benefit from one factor more than another.

It is easy to play judge and pronounce what determines productivity. But, it will have little merit when evaluating print performance for an end user environment. Device A may print Document 1 faster than Device B. But, Device B may print Document 2 faster. You cannot determine which document is the best measure of productivity.

The same is true of network traffic tests where multiple jobs are submitted at once. By rearranging the order of the jobs, the productivity of Device A and Device B could easily be reversed.

BERTL does not restrict its evaluation of print performance to such tests. It provides information on how jobs are treated across the various PDLs offered, thus allowing users to get the best out of the device.

Print Features Summary	
CPU	866 MHz w/Print/Scan Kit Type 1350, Fiery EB-135 and Micro-Press controllers are also available
RAM and Hard Drive	512MB, 320GB (160 GB X 2)
Operating Platforms Supported	Windows 9x, ME, 2000, Server 2003, XP, NT 4.0, Macintosh OS X or higher, Unix
Printer Drivers	PCL5e/6, RPCS, optional Adobe PostScript 3, Direct PDF
Network Protocols	IPX/SPX , TCP/IP, Ethertalk
Interfaces / Standard	10BaseT/100BaseTX Ethernet, USB 2.0
Interfaces / Options	802.11b Wireless, USB, Gigabit Ethernet, Bluetooth, 1394 FireWire, Parallel, USB Hub.
Client Software	DeskTopBinder v2, SmartDeviceMonitor, WebSmartDeviceMonitor, WebImageMonitor
Std PCL Fonts Supported	59
Std PS Fonts Supported	136

Printer Drivers
Driver design varies enormously from manufacturer to manufacturer. Most try to keep a common style throughout their range to reduce learning curves. However, many have significant design differences between PDLs, which can raise issues. While many features are common throughout drivers from all manufacturers, there are some differentiators, which—while niche benefits in many instances—can be valuable in the right hands. We highlight the strengths and weaknesses over the following pages.

Print Productivity

The print productivity results for the Ricoh Aficio MP1350 highlighted some opportunities for maximizing productivity and reducing network bandwidth through intelligent driver selection. On PDF documents, the PCL driver faired badly compared to both the PostScript and RPCS drivers in both output speed and network bandwidth. The one exception to this PDF workflow was the PDF quick reference document, which was printed in booklet format with PCL. This proved to be more efficient than RPCS and with PostScript not in the picture, due to it not possessing an imposition feature.

On Microsoft Office applications PCL faired better with lower bandwidth than PostScript across Word, Publisher, and PowerPoint, yet it still fell behind in output productivity, albeit more marginal. RPCS again proved to be the most attractive proposition in productivity terms, especially on the graphically intensive Publisher file. The PCL struggled to output and PostScript failed. This resulted in resetting the print job upon delivery at the device upon multiple attempts.

With its higher functionality and now manageable bandwidth, the processing power and productivity of RPCS makes it a very compelling PDL to standardize for the Ricoh Aficio MP1350.

Bandwidth Comparison			
	PCL	PS	RPCS
50-page text based PDF	2.22 MB	1.51 MB	2.29 MB
16-page magazine in PDF	35.3 MB	3.31 MB	4.52 MB
6-page medium resolution graphic PDF	29.9 MB	1.14 MB	3.83 MB
2-page high resolution PDF	7.51 MB	6.48 MB	0.99 MB
32-page text-based PowerPoint	2.12 MB	6.06 MB	872 KB
69-page graphic intensive PowerPoint	10.8 MB	26.3 MB	8.74 MB
38-page form-intensive Word document	3.71 MB	13.4 MB	1.65 MB
33-page graphic intensive Publisher document	60.8 MB	248 MB	27.8 MB
11-page DWF Construction Plan in 600dpi Ledger	2.16 MB	12.0MB	25.7 MB
11-page DWF Construction Plan in 1200dpi Ledger	7.21 MB	12.3 MB	29.3 MB
92-page PDF instruction manual	5.30 MB	8.57 MB	12.6 MB
4-page 11"x17" Quick Reference pamphlet printed in booklet layout	1.07 MB	N/A	0.98 MB

Output Time Comparison Between PCL and PostScript

13 November 2006

Page 31
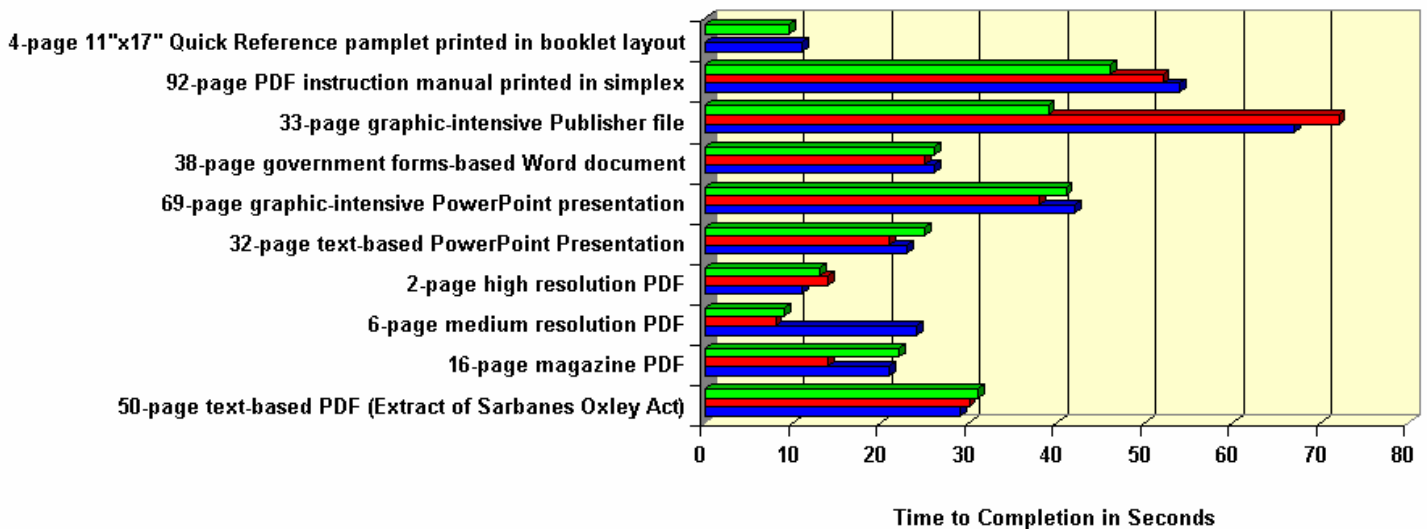
Batch Printing

Market Background Information: While single job printing may show up minor productivity advantages between devices and stacking up a selection or arbitrary print file and releasing them all at once may give an impression of processing ability, it is the end user that will usually be the greatest factor in the time from 'print required' to 'print in hand.'

One such example of where a typical print function can see enormous set up differences from device to device is in the area surrounding batch print workflow.

Batch printing is where a user is faced with multiple files, which needs to be treated as a single entity. There are two main scenarios for this.

1. Multiple authors contributing to a single document.
2. Creating collated sets comprised of multiple individual documents.

In the first instance, the administrator, editor, project leader, etc. may need to combine a selection of documents possibly created in a variety of file types together in order to apply a common finishing attribute. They may also want to incorporate page numbering, watermarking, or other formatting option to the overall document.

In the second instance, a marketing executive, construction project coordinator, school teacher or training supervisor tasked with compiling entire folders of information wants entire sets stacked ready for insertion into the folder or courier envelope ready for distribution. They may want separate finishing, different media supplies, or print attributes on a document-by-document basis so that each lesson plan or press release is stapled individually, or building plans are in one color, plumbing plans in another, and electrical plans in another.

These workflow scenarios put MFPs and printers to task as they demand more than simply the ability to spool, RIP, and print a file as fast as possible. Some manufacturers now include a desktop utility that looks to offer at least some of the answers to the problems highlighted above.

The degree to which each situation is mastered varies enormously from manufacturer to manufacturer, with some offering no solution, some a partial solution, and others a total solution. In environments where this workflow is commonplace, this ability can be the difference between device acceptance and device return.

Batch Printing Capabilities	
Multiple jobs all combined into a single finished document.	Yes
Multiple jobs all combined into a single finished document with page numbering/watermarking added.	Yes
Multiple jobs sent in collated sets	Yes
Multiple jobs sent in collated sets with finishing/job attributes changes on a job by job basis	No

Ricoh Batch Printing Solutions:

Ricoh has gotten closer to the perfect four batch capability wish list than ever before, with only the finishing on a job-by- job basis now alluding them.

To achieve the first two batch workflows, such as combining multiple jobs into one document, users can choose two different workflows. The first is through the RPCS drive only and involves sending jobs via the Job Binding feature to DeskTopBinder. From there, files can be merged and resubmitted to print with finishing as required. This approach, however, does not satisfy batch workflow three, where individual jobs are to be printed individually in collated format.

To do this, users must send jobs to the Document Server. This can be achieved in the PCL, PostScript, and RPCS drivers. Once stored, users both from the desktop and the walk up interface can select multiple jobs and submit them to print either as a combined job (i.e. like the DeskTop-Binder workflow discussed above) or as individual collated jobs.

However, users are still unable to set up the device to add finishing on a job-by-job basis. BERTL analysts even tried defaulting the device to staple output, and the device still removed the finishing functionality.
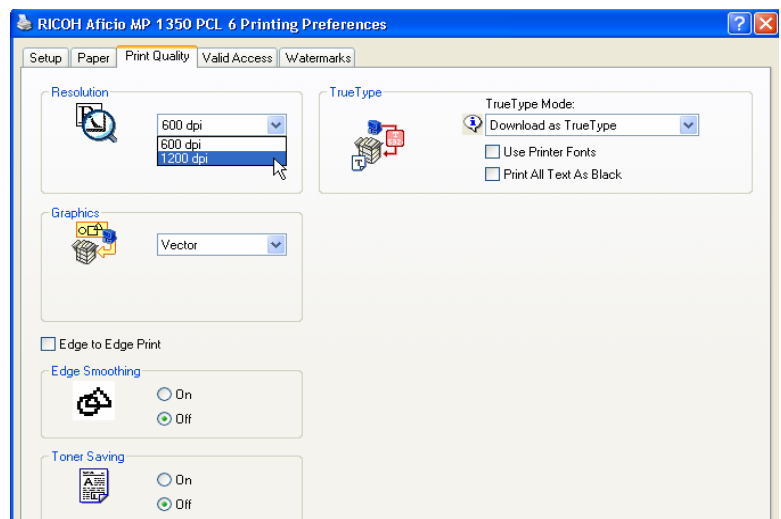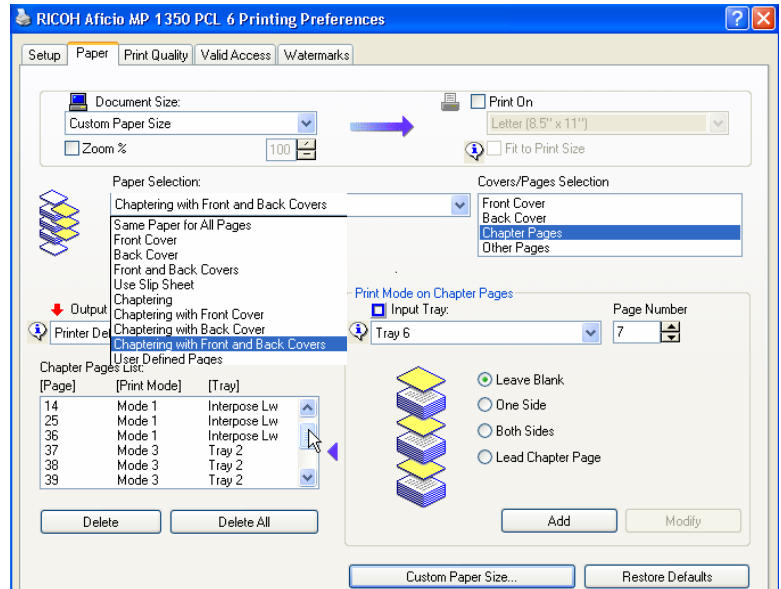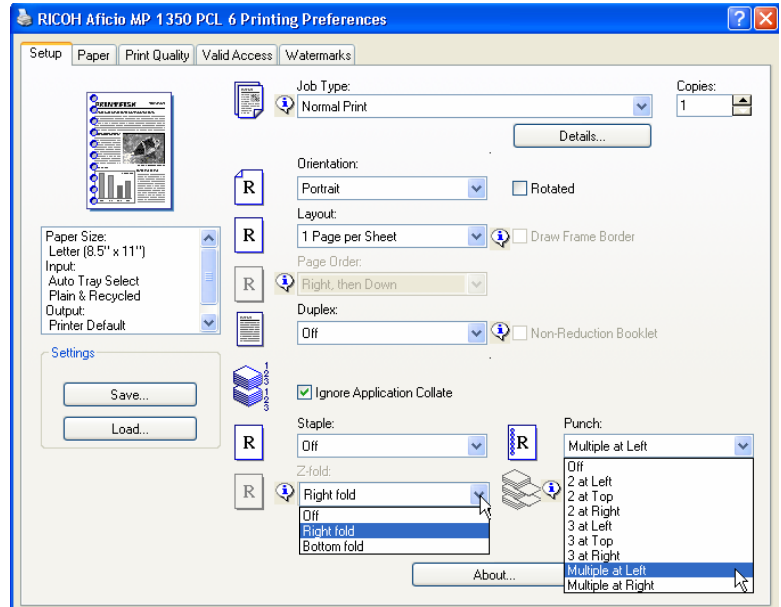
Print

PCL6 Print Driver Functionality

The PCL6 driver has a familiar look and feel following industry-standard layout and design. The Setup tab provides the main print functionality. Job delivery options include private and sample print modes plus an option to send jobs to the Document Server for print on demand purposes.

For those not needing multiple media supplies in a single document, all major features are found on the opening tab. This eliminates the need to navigate away from the opening tab and reduces job build times. The MP1350 can only be equipped with the separate die punch GBC unit. In the screenshot opposite.

For those looking for more media flexibility, the Paper tab allows users to specify a media supply for the front, back, and chapter/insert pages. This flexible feature set allows a wide range of professional documents to be produced. Chapter mode and user defined modes both allow users to work on any given page within the document applying media type, selection, and printing attributes (1 side, 2 side, no print, lead chapter page (such as starting on the facing page). All media sources can be selected for each paper selection type with the exception of user defined mode, which does not provide access to the twin interposer unit. This would have been a good feature to enable since user defined mode allows for entire page ranges to be added quickly versus chapter mode, which does allow for feeding from the interposer units. Chapter mode applies the setting on a page by page basis.

With little trial and error, users can build a very wide range of documents incorporating up to nine different media supplies that should more than adequately provide for the toughest in-house printing needs.

Print Quality settings are fairly standard with users able to choose 600 dpi or 1,200 dpi output, vector or raster graphics, edge-to-edge printing, toner save mode, and true type font mode.

RPCS Print Driver Functionality

The RPCS driver is equipped to share the processing workload between the desktop PC and the MFP. The RPCS driver has two designs available. A common PCL look and feel and an icon-design driver interface, which is designed to make printing a faster one touch process.

The icon system design works on the premise of allowing users to store all the print settings they need for a job. To retrieve these job settings the user simply selects the icon they require. When the mouse cursor is moved over an icon a pop up window appears, providing more details on the print settings. It does take a little time to learn how to use the driver, but once the user is familiar, the driver offers considerably faster job build times and increased functionality not available to PCL users. This is especially valuable when creating complex documents such as the government form document we saved where 21 different setting were built up as a single job.

When opening the driver, the two tabs are visible. Options available from the main Print Settings tab are described on the next page.

The Print Quality tab includes a selection of preset image quality profiles and lets users store a selection of image profiles of their choice. For example, we set up a high quality mode using the 1,200 dpi and fine line reproduction for CAD print workflows under custom print quality 1. There is also a Toner Save mode within the tab for those looking to save on supplies.
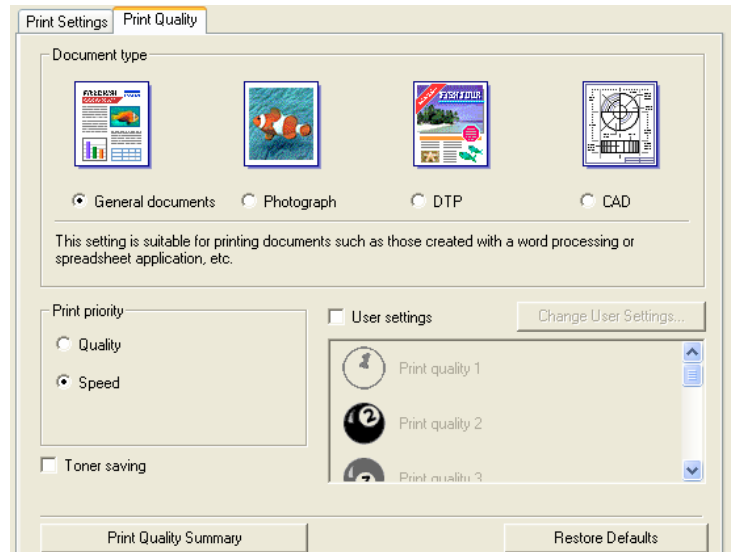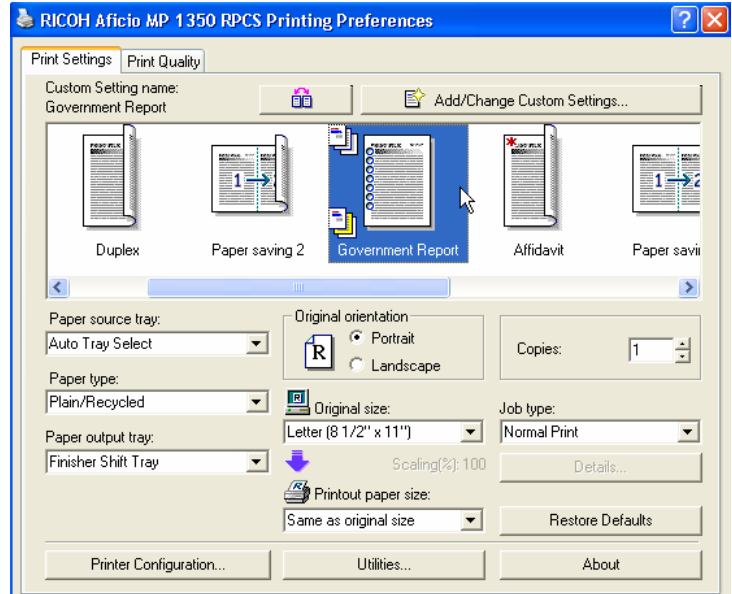
Print

RPCS Print Driver Functionality (Continued)

To change a custom setting, users select the Change/Ad Custom Settings icon on the opening screen. From there, they now have five tabs that can be used to build the job profile. The Set up tab has the main media features, job delivery mode options, and set selection.

Within the Edit tab, users can choose more advanced document production options. Multi-up, Booklet, and Signature modes provide for efficient archiving and low-cost imposition capabilities. Watermarking and overlay capabilities are extensive, allowing users to get further away from a dependency on pre-printed media stocks.

In the bottom left of the tab is the ability to set up an Unauthorized copy background pattern. This feature places a non-invasive, watermarked security alert on an original that appears when a copy is attempted.
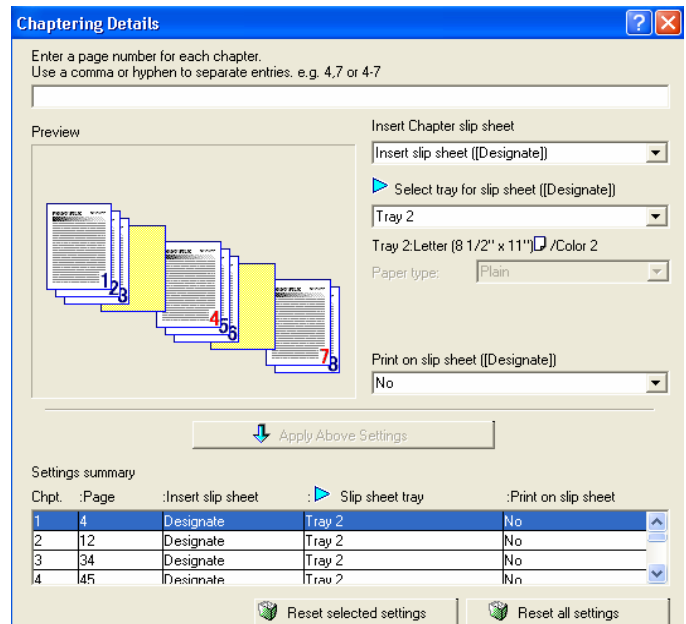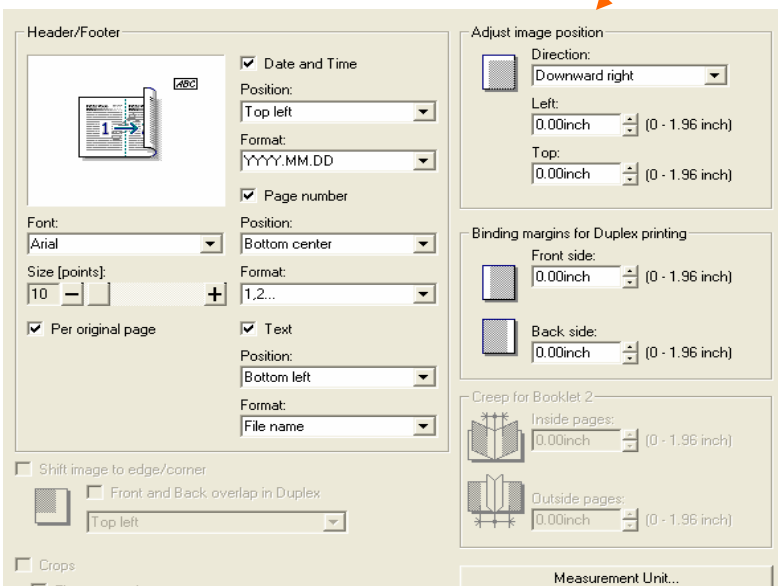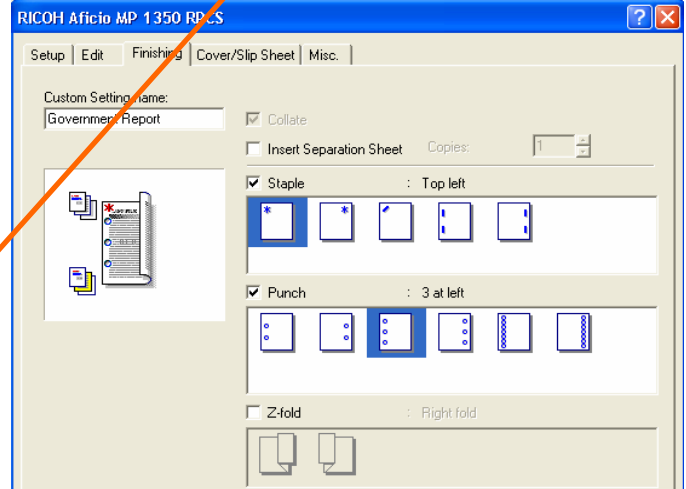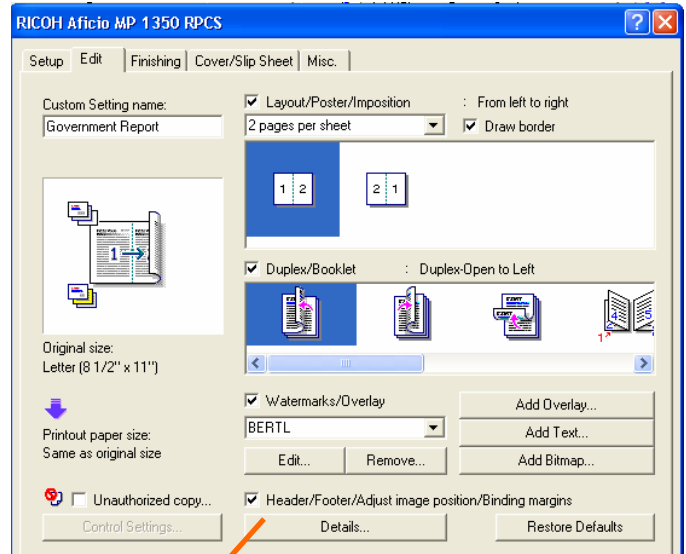
Image Quality

Image quality across a wide range of print jobs and file formats on the Ricoh Aficio MP1350 was at a very good standard satisfying the needs of office users across a very wide range of document types.

Grayscales were reproduced to a very high standard with contrast maintained in dark areas and good differentiation of subtle colors such as the foliage and grapes. The texture of the grape skin was very realistic with good texture and smooth interpretation of color gradations.

There was only minor stepping in some of the grayscale sliding scale that we have seen on some other devices and 25 percent grayscale was clearly visible.

Fonts and fine lines were reproduced to a high standard and registration was tight from page to page and from back to front. There was a little breakup on fine scripts printed in reverse mode (i.e. white text on black background) at lower font sizes.

Solid areas of shade showed only minor banding, a common problem shared by all laser photosensitive equipment. The banding was much less noticeable than we have seen on some rival units and would not be regarded by the reader as poor quality output.

The reproduction of stepped 1-10 and 90-100 grayscales was not as smooth as production devices (much more expensive than the Ricoh Aficio MP1350) and solid black was not as rich. But for those producing work in a general office, these image quality issues will not play a part and may not even be noticed.
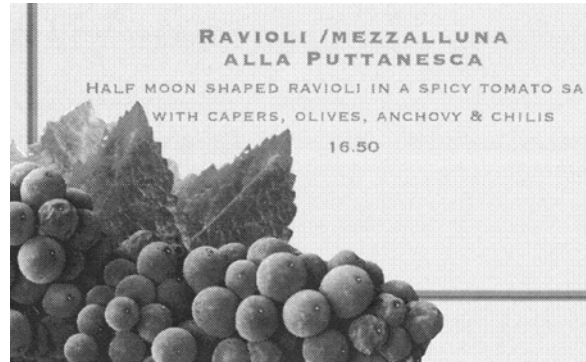
Above: High resolution PDF
Below: High resolution digital camera picture

(Both images scanned at 600dpi and reproduced at 100 percent)

Shading and fine line text sample test patterns
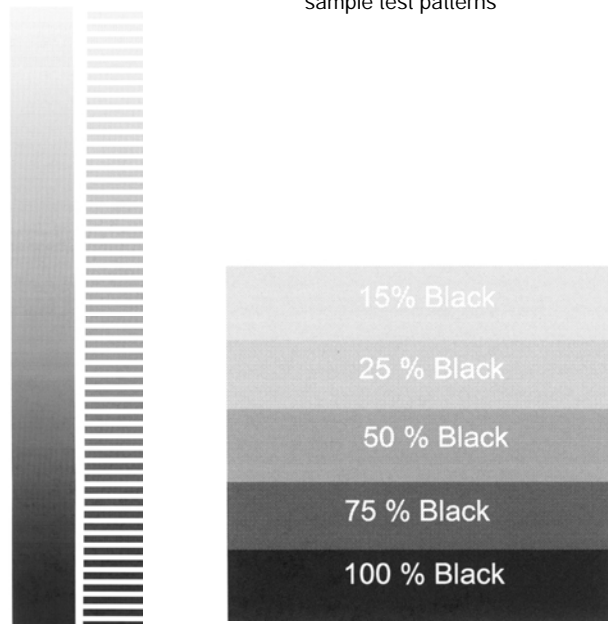
WHAT WE LIKED:

- The powerful print processor and large memory resources enable the device to power through print workflows and large files.

- Highly featured drivers deliver a wide range of document production capabilities.

- The user-friendly, icon-driven RPCS driver can offer high levels of print functionality with the minimum of user selections.

- The RPCS driver lets users specify whether the processing workload should be carried out at the device or PC level.

- Advanced print clustering capabilities via SmartDeviceMonitor include automatic or semi-automatic job re-routing and load balancing. This ensures that in multi-device environments, network print downtime, and bottlenecks are kept to a minimum.

- The RPCS driver offers extensive page stamping capabilities that can aid in printing documents that are created in applications that do not offer numbering or other capabilities.

- The Job Binding feature in the RPCS driver, coupled with DeskTopBinder utility, allows users to combine multiple documents created in single or multiple applications into a single file for batch printing.

- Direct PDF printing capability—when the PostScript function is added—allows users to send large PDF files directly to the device without having to be opened or RIPped into PCL or PS3 formats.

- The image overlay capability in the RPCS driver allows users to add standard background designs such as company forms or presentation layouts to the device to add into documents at the device level. This eliminates the need to rip the files at the desktop and send them over the network for processing every time.

- An extensive mixed orientation feature set allows for complex multi-media jobs to be handled correctly, ensuring maximum legibility of every page.

WHAT WE WOULD LIKE TO SEE:

- Direct PDF capability could be offered as a standard feature.

- Direct USB memory stick print capability would provide walk up print capability in kiosk-like environments where printer drivers are not available or convenient.

- The ability to specify page ranges using the chapter mode or the ability to specify the interposer trays from the user defined page programming feature would allow entire pre-printed sections to be incorporated more efficiently.

- The ability to combine chapters and user defined pages into a single document would allow more complex documents to be produced.

Market Background Information
In just a few years, network scanning has moved from a luxury item to one of the most important functions on many MFPs.

Virtually all MFPs offer standard or optional network scanning. Document feeder design is now a major focus with users looking for higher speed, low resolution capabilities, more versatile scan functions, and even color scanning on devices only equipped with monochrome marking engines.

Address Book Integration
Integration into central corporate address books on LDAP or NT servers is the de facto standard today, as is the ability to force-populate outgoing email with sender information through an enforced login process. This way, outgoing communications from the remote MFP can be traced back to the user and audited for compliance purposes.

Destinations
Scan-to destinations include email, SMB (Windows desktop locations), FTP, and Internet fax. In some instances, the scan goes directly to the hard drive. An email is sent to the recipient with a URL link so they can quickly download the scan file from the device hard drive location. A growing number of devices are starting to include external media ports to allow scanning directly to USB memory sticks or digital camera SD chips. We expect to see this be commonplace over the next year.

Security
Security is another hot point in scanning. Several devices now include the capability to send scan messages using encrypted PDF or other secure transfer medium. This can be an important factor in many industries that are sensitive to data theft or misuse.

Integration with Third-Party Applications
The big buzz in the MFP industry is the move toward open architecture, where the firmware backbone of the device is based on an industry standard like Java or .NET rather than a proprietary system. This opens great opportunities for far greater MFP integration with other software applications through third-party applications created with software developer kits (SDK).

Scan Features Summary	
Maximum Scan Speed (Mono)	80-ipm
Maximum, Scan Speed (Color)	80-ipm
Document Feeder Capacity	100 sheets
Connectivity Options	Ethernet 10/100BaseT
Scan to email	Standard
Scan to SMB	Standard
Scan to FTP	Standard
Scan to HDD	Standard
Scan to URL	Standard
Scan to Internet Fax	No
TWAIN Scanning	Standard
Scan to External Memory Source (USB/SD card)	No
Network Authentication	Standard
LDAP Authentication	Standard
File Formats Supported	PDF, TIFF, JPEG, High Compression PDF
Encrypted PDF Format	Standard
Resolution Options	100, 200, 300, 400, 600 dpi (1,200 dpi with TWAIN)
Ad hoc Subject Line Entry	Standard
Ad hoc Message Line Entry	Standard
Ad hoc File Name Entry	Standard

Through these partnerships, scanning from the MFP can take on a new life, doing more than just routing files from the MFP to an email or folder. Now, information can be directed into a sophisticated workflow complete with metadata, billing information, image enhancement, and other functions. All are from the initial scanning action, rather than the multi-stage process used previously.

Currently, there is great differentiation in the field of scanning as manufacturers continue to develop this aspect of the device. Watch for more image enhancement and workflow capabilities to become commonplace as scanning continues to pick up the pace as a dominant factor.

Scan

Scan to Email

Ricoh's scan to email function is feature-rich. Users start by choosing the destinations through the device address book, by dynamic searching of corporate shared address books, or by manual entry at the touch screen. The large touch screen makes the entry of email addresses on the fly faster and more accurate than many competing systems with smaller monochrome alternatives. (Figure 2)

Once the destinations have been selected, the email can be personalized through the addition of a preset or manual message or subject line. A sender name and receipt can be set up at this time. This ensures that the email is recognized by the recipient as being genuine and does not get lost in the system.

Users can select from a wide range of scan settings including resolutions from 100 dpi to 600 dpi, batch and multi-size scanning, and original size. (Figure 3)

On the File Name/Type panel, users specify a file name rather than use the unique file identifier. The file type options include TIFF and PDF. Users can also choose between standard PDF or a High Compression PDF. (Figure 4)

Within PDF mode, users can choose to encrypt the PDF with a PIN unlock code so information is transferred without risk of interception. (Figure 4)
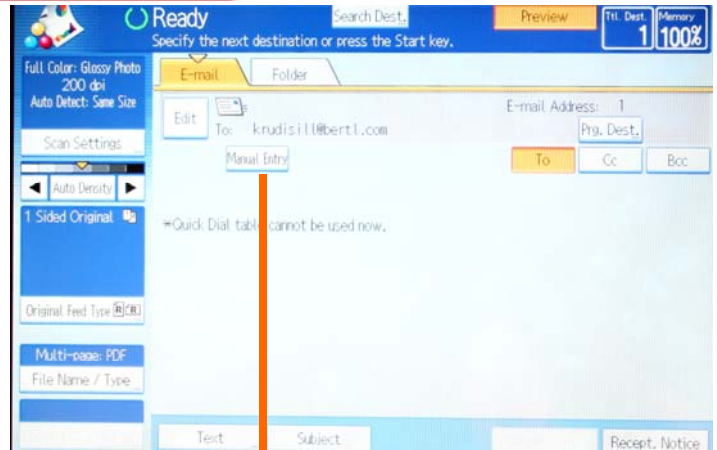
Fig 1
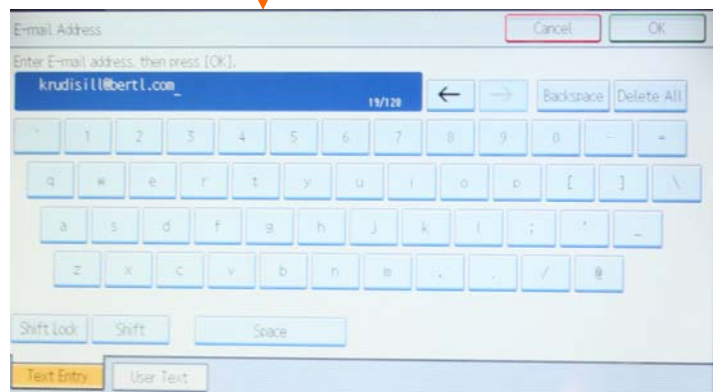
Fig 2

Fig 3
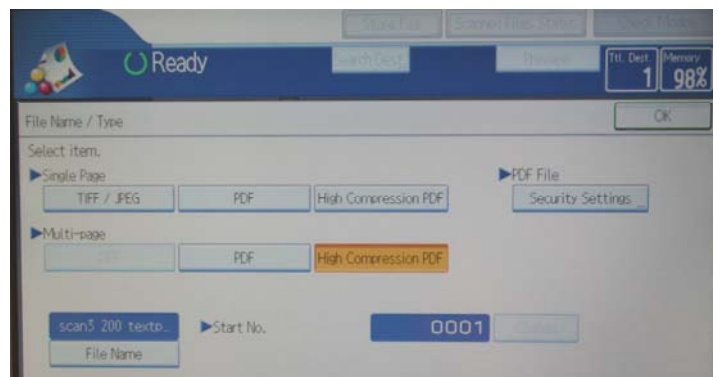
Fig 4

Scan to Email (Cont'd)

Users can also choose to preview pages in full color before committing a scan file. On the preview, window users can zoom in to check the legibility of the document and browse from page to page if required. This valuable feature ensures that data capture is accurate, saving valuable processing time later in the document handling phase.

The preview was high enough in quality to be able to read text down to an 8 point size with ease.

The Preview mode is an invaluable tool that allows Ricoh users to check that each file is to a high enough quality before committing the job to the outgoing transmission queue.

Another valuable feature that Ricoh has included in the scan function is the ability to attach previously stored files to email functions. To do this, users select the 'Select Stored File' icon on the lower left side of the scan window. The user can then browse stored files as file lists or view thumbnails and simply choose those files that they wish to use. This can save valuable time when processing repeat documents such as information brochures, order forms, T&Cs alongside hard copy scan workflows.

For internal communications where bandwidth may limit file size transfers via email, users can also store documents on the hard drive of the device and instead send an email with a URL Link that allows the recipient to download the file across the network without having to go via the SMTP mail server, thus avoiding bandwidth limitations.

Last, but by no means least, is the ability to scan in full color. This valuable feature is a clear differentiator between the device and most of its rivals which are still limited to monochrome scanning. See later in the report for more information on the color scanning capabilities of the device.
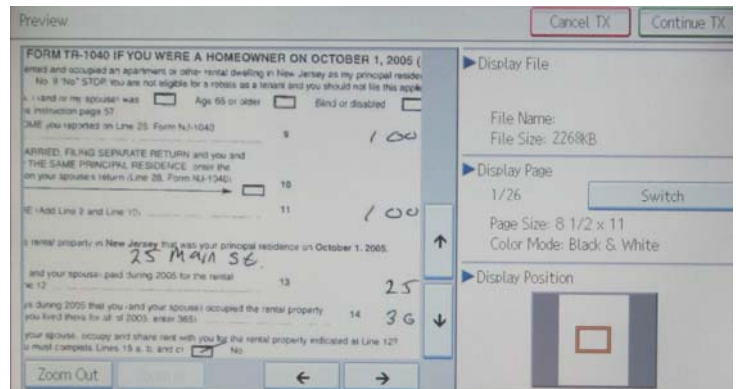
Scan Data Capture Accuracy

One of the fastest growing needs for high-speed scanning is the conversion of legacy hard copy documents into an electronic format for better information sharing, reduced storage space, and easier search and data retrieval.

A scan converts a page into an image, which is not very manageable. Most companies use optical character recognition (OCR) software to convert the images into editable text, which can then be searched, changed, or incorporated into a new document as required.

The OCR engine recognizes individual images on the page, converting them into letters, numbers, and other symbols. The OCR engine then runs complex analysis on the text in conjunction with spell checkers, technical dictionaries, and other data sources before offering up its best conversion into electronic format.

This stage can be very time-consuming, especially if the quality of the scanned data is poor. This leads to character recognition errors.

To look into this important workflow issue, BERTL ran a series of standard test patterns with multiple font types, sizes, and colors capturing the data at various resolutions using both text and text/photo settings. Text is the default setting for most OCR work due to its 2-bit format, which tends to produce the best text reproduction.

However, as more documents incorporate images and color elements, text/photo, which operates in 8-bit and reproduces gray shades for better reproduction of images and colored text elements, is also being used.

After scanning each page of its test originals, BERTL analysts then ran the scanned files through ABBYY FineReader 8.0, in default configuration. The impact of the accuracy of the scanning process at the various resolutions and settings is reflected in the number of manual confirmations that the OCR application demands before the document is deemed clean and ready to use.

The higher the human intervention rate, the higher the cost of carrying out the action. As expected, the greatest difficulty in OCR recognition was found on the smallest 4 point text sections of the test documents.

Above is a portion of BERTL's OCR test chart scanned at 200 dpi (top), 300 dpi (middle), and 600 dpi (bottom) in text format and saved as a PDF file. The image has been zoomed to 400 percent in Adobe Acrobat and screen-captured for display.

The top line is 4 point, the middle line is 6 point, and the bottom line is 8 point.

The choice of OCR application will also have a dramatic effect on the level of human intervention that is required after the initial scanning has taken place. For that reason, we have standardized on ABBYY, a well-respected leading OCR software developer.

Our tests are run using the latest level of ABBYY's FineReader 8.0 software in Default modes. Through fine tuning of the rich feature set in ABBYY, an additional portion of the manual intervention could be removed. However, to maintain benchmark comparison procedures, default settings were selected.

As the table below illustrates in BERTL's test, which includes multiple fonts, font colors, and font sizes, the Text mode delivered an image that required considerably less user intervention after the initial OCR read evaluation had been carried out, especially at the lower 200 dpi resolution.

The level of accuracy at 200 dpi Text mode was good with 6 point reporting a 90 percent accuracy rate at all four scan test settings with a clean 100 percent conversion at 8 point.

The 300 dpi Text mode delivered, as expected, even better results with 6 point achieving a 100 percent accuracy rating with even 4 point reaching over 60% accuracy rating.

As the table illustrates, Text/Photo mode did not fair as well in either the 200 dpi or 300 dpi mode test patterns.

That being said, the most important figures to look for in general office OCR are the 10-point Times New Roman and Arial fonts in black that are the most frequently used font styles in day-to-day correspondence. In both of these font settings, the Ricoh Aficio MP1350 delivered a perfect 100 percent OCR conversion, with only 200dpi text/photo failing to hit the same 100% accuracy on blue and red fonts.

The Effect of Scan Resolution on OCR Accuracy Evaluation

Legend: ■ 200dpi text ■ 200dpi text photo ■ 300dpi text ■ 300dpi text photo

Percentage of words processed correctly with no human intervention

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Scan Data Capture Productivity

Judging scan productivity is another difficult task. The impact of the user on the overall process will be largely determined by the amount of work required at the initial scan operation. In other words, if the scan operator is expected to enter copious amounts of metadata using the device touch screen interface before hitting the scan start button, then the overall productivity is going to be governed more by the user-friendliness of the interface rather than the scanner technology or transfer rate.

However, if the user is merely scanning a file to a precon-figured location, then the scan productivity can be measured looking at two aspects: the time the user must wait until they can return to their desk with originals in hand and the time they must wait before the files can be accessed.

BERTL looks at both of these factors across a selection of scanning settings.

Scanning time is only one part of the time required to support image creation. Getting it to your destination is another. The chart below shows the scanning time, but also reflects something just as, if not more, important: the time it takes to actually use this image. This is a frequently overlooked aspect of scanning. There are differing time elements in the actual scan side of the operation, but also in the time to desktop.

BERTL's test included different resolution settings (200 dpi and 300 dpi) as well as different capture levels: Text only and Text/Photo.

Results

Monochrome scanning showed negligible differences in scanning time or data transfer speed between 200 dpi and 300 dpi scanning. There was no impact upon scanning when OCR color dropout is included which will please those looking to use the device for forms processing and other color dropout tasks.

There was also no noticeable scanning slowdown when we switched to color scanning at the 200 dpi resolution level. At 300 dpi, color scanning speed did slow down 28 percent.

The largest slowdown was seen when BERTL switched to using the compressed PDF scanning format. While greatly reducing the file sizes created during the scanning process (which could ease communication and result in faster data transfer rates) the actual scanning time for the originals was substantially longer than in the uncompressed mode with the 300dpi Text/Photo color scan taking nearly three times longer to carry out in PDF compressed mode.

This in turn impacts the time the users must spend away from their desk before they can return with their original documents in hand. Lower productivity in converting the file to High Compression PDF more than makes up for the greatly reduced file transmission times.

Scan to File Productivity

Category	Time in seconds
300 dpi text photo color high compression PDF	~64
200 dpi text photo color high compression PDF	~41
300 dpi text photo color	~28
200 dpi text color	~21
300dpi text OCR with red color dropout	~20
300 dpi text photo monochrome	~21
300dpi text monochrome	~21
200 dpi text photo monochrome	~20
200 dpi text monochrome	~20
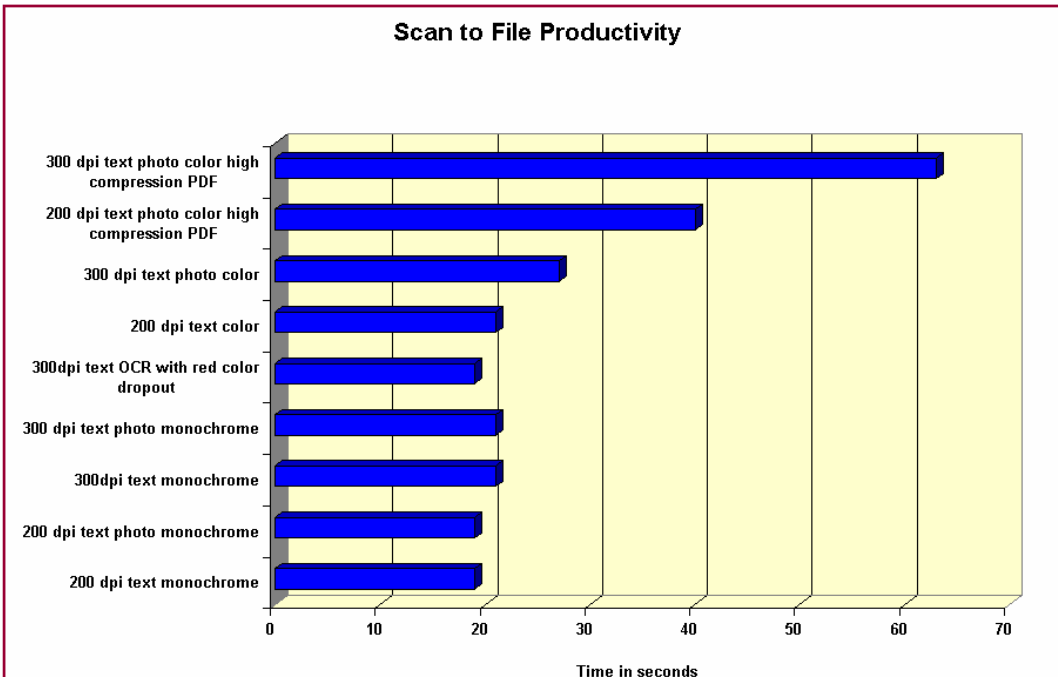
Mixed Media and Batch Scanning

In a perfect world, all original documents are the same size, of the same type, and require the same imaging settings.

Manufacturers advertise their maximum scanning speed based upon this perfect scenario. BERTL looks beyond the perfect world, providing valuable real world information.

Take the example of a paralegal scanning a case file. The file could well contain both letter and legal sized documents, requiring a mixed media capability. This feature can drop the scan productivity on some devices by as much as 80 percent as the extra step of manually checking each page for size becomes part of the process.

The case file also includes both plain text pages and accident scene photographs. The text pages are best captured using Text or Text/Photo mode. However, the accident scene photograph is best scanned using the Photo mode, which captures the halftone detail to a much better degree. Most devices do not allow users to switch between different modes in mid scan session.
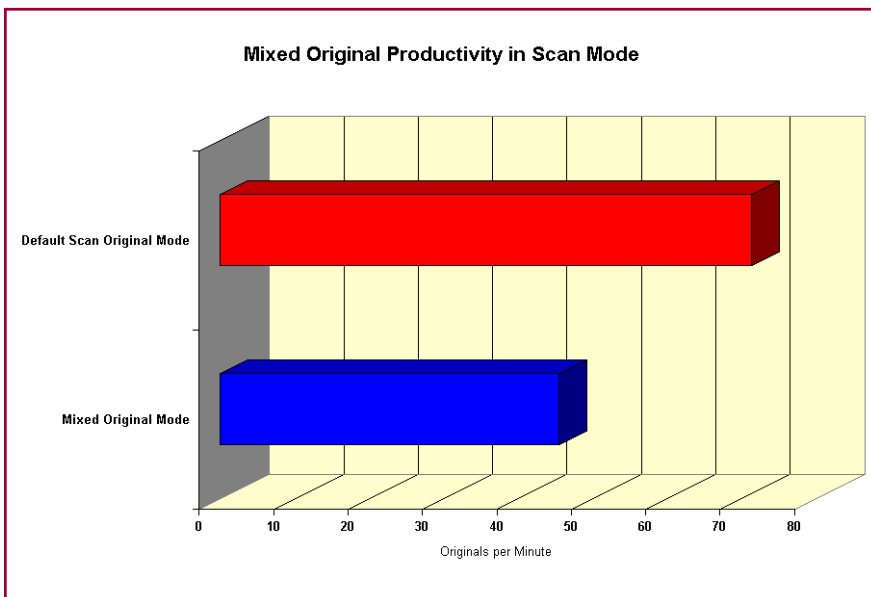
The photograph also poses another problem in that the paralegal does not want to run the risk of damaging the photograph by feeding it through the document feeder. The paralegal would prefer instead to use the glass platen scanner. This again is not possible on some units, which limit batch/job build scanning to either all document feeder or all glass platen scanning.

Batch and Mixed Media Scanning Capabilities	
Batch /job build scanning beyond the capacity of the document feeder	Yes
Batch/job build scanning incorporating both document feeder and platen scans	Yes
Change scan settings such as original type, original size etc from scan page to scan page	Limited
Mixed media size scanning capability	Yes

Batch/Job Build Scanning Observations

Batch/job build scanning is accessed by first selecting the wizard hard key to the left of the screen. Users can then build jobs from the platen and document feeder changing settings before each scan session. To enter a new scan section, the user selects 'add' and the pages scan accordingly. To release the job, the user hits the green button. The batch scan function does not allow users to mix simplex and duplex scanning, a feature that some devices do offer, forcing users instead to scan all documents in Duplex mode (if double sided originals are present) and then having to remove all the blank pages using another utility.

Mixed size mode proved to be less efficient on the Ricoh Aficio MP1350 than what BERTL analysts have seen on some other Ricoh units with a 57 percent reduction in scanning throughput speed.

Mixed Original Productivity in Scan Mode

- Default Scan Original Mode
- Mixed Original Mode

Originals per Minute

Original Handling Capabilities

While scanning speeds and duty volumes may be based upon perfect standard letter sized office grade, laser printer paper, there is a much wider range of media substrates commonly used and handled in the world every day.

Coated Surfaces Help Printing But Hinder Scanning:

Friction rollers, which grip and guide originals through the document feeder, work very well on standard fibrous office paper. Now consider the account department administrator who scans hundreds of multi-part purchase orders printed on carbonless paper or a customer service department processing customer correspondents using coated inkjet paper. Both media supplies include a chemical surface layer that aids printing, but reduces friction that make rollers slip and mis-feed.

Damaged Originals Can Create Rejections:

Perfectly crisp flat edges are an ideal medium to feed through a document feeder. Now consider the paralegal processing discovery documents complete with ripped out corners left after staple removal or torn punch holes. Some scanner mechanisms are designed to shutdown at the merest detection of imperfection to avoid jamming risks while others battle through with more forgiving fed mechanisms that adjust to less than perfect conditions.

Size Matters:

Most scanner units include multiple friction rollers, which share the workload and maintain a straight feed path. Smaller originals like invoices, business cards, index cards, etc. may only get captured and fed through the scanner by one set of friction rollers, which can result in more crooked mis-feeds and jams.

There is a Perfect Weight

The flexibility, resistance, and other physical factors of standard office grade paper make it the ideal medium for high speed scanning. As paper weights get further away from the ideal, such as thin delicate newspaper or heavy purchase warranty registration card, so do the incidences of mis-feeds.

BERTL Tests Span Real World Situations:

To see how scanner feed mechanisms handle the wide range of possible media types, BERTL analysts stack the feeder with a wide range of media types and report on how each original type is handled.

Original Handling Results (scanned at 200dpi monochrome) setting	
67 lb. Cover Stock Registration Cards	Fed Successfully
Yellow Pages (newspaper grade media)	Fed Successfully
Magazine with heavy glossy cover and 20 lb. glossy coated inside pages	Fed Successfully
Carbonless Purchase Order Forms	Fed Successfully
Business Cards	Not Supported
Coated Inkjet Paper	Fed Successfully
4' x 6' Index Cards	Fed Successfully
20 lb. bond office paper fed with leading edge damage due to staple removal	Fed Successfully

Original Feeding Test Observations:.

The reversing duplex document feeder proved to be more reliant to extremes of original scanning than some other units tested recently (with only business cards falling below the capabilities of the device), despite its two-pass technology design. Unlike some other Ricoh document feeders, there is no gap between the input paper path and the white background plate that is used as the reference for the platen scanner. The Ricoh Aficio MP1350 document feeder handled all media types, large and small, thin and thick with no issues. This places the Ricoh in a strong position to be taken seriously as a production scanning resource especially due to its added color scanning capability and dropout feature.

What Is Color Dropout?

Color dropout is a scanning feature that, as the name suggests, removes a specific color from a scanned image. Color dropout can be carried out either at the hardware before data transmission or on the desktop using software after data transmission. The benefit of performing color dropout at the device stage is that the bandwidth associated with the file now decreases dramatically due to the removal of much of the image data. This bandwidth reduction puts less strain on the network and can have a marked effect on the data transmission speed and time-to-file availability.

Who Uses Color Dropout?

In short, anyone who processes forms will probably benefit from color dropout technology: financial institutions processing loan applications, insurance companies processing insurance claims, law firms removing highlighting from discovery documents, government departments processing tax rebates, immigration requests, grant submissions, schools processing bubblesheet test sheets, and others.

Forms often incorporate a background color within their design to allow for easier navigation and improved completion accuracy. While the use of color makes forms easier to read and complete, it adds an additional burden when scanning the results into the business process automation system used to analyze the completed forms. The data found within the forms only needs to be collected in black and white through processing by OCR (optical character recognition) or ICR (intelligent character recognition) software.

From that point on, the form is converted into binary data and routed to a database or document management system where it becomes part of the electronic workflow. Rival MFPs can offer 2-bit or 8-bit monochrome scanning, which reduces the bandwidth associated with color scanning. But, the color data is still present in the document, it is just in monochrome format. This means that, at the least, the file size is going to be greater, increasing transmission time and storage space. It can also mean that documents are more difficult to process, especially if the colored area is actually written over.

Left: Original form with color background for easier navigation.
Middle: Form scanned in Monochrome mode without color dropout is hard to read and prone to image capture errors.
Right: Form scanned using Color Dropout mode is now easy to read and delivers high image capture accuracy.

Left: This is an original document with highlighting.
Middle: Original scanned in Monochrome mode results in highlighted areas being unreadable.
Right: Original scanned with color dropout renders the document instantly usable with no human intervention required

Color Dropout Productivity

In theory, color dropout could have an impact in two areas of scanning: the scanning speed and the overall time to get the color removed before data transmission can begin. BERTL looked into this. We scanned 50 pages of a completed, standard government tax forms, running the same job in both Monochrome Text mode and Color Dropout mode.

We were pleasantly surprised to find that there was no slow down in the scanning speed when color dropout was applied. This means that the process will not be adding to the cost burden of the company in terms of human intervention time. We were even more pleasantly surprised to see that the data transmission time dropped 30 percent when we applied color dropout and resulted in a bandwidth reduction of 42 percent.

While these figures will obviously change from form to form, depending upon the level of color dropout out, these figures are a guide to the potential time and bandwidth savings that a company could possibly achieve.

WHAT WE LIKED:

- Color scanning capability that offers more diverse production scanning capabilities than those offered by rivals restricted to monochrome scanning functionality.

- Color dropout capability allows users to remove unwanted backgrounds, highlighted edits to text documents, and other areas where color can have a negative impact on scanning workflow.

- The large touch screen makes feature selection and manual entry of data faster than rival units.

- The High Compression PDF mode reduces file sizes significantly, which will reduce the risk of firewall rejection and increase transmission rates.

- The high degree of message personalization provides for a higher rate of opening/reading by the recipient.

- Extensive security capabilities, including PDF encryption and permission settings, make communications more secure and users less at risk of personal information data breaches.

- Batch and Mixed Media modes allow complex mixed document sets to be combined into a single scan job more easily than rival units.

- Preview mode allows users to check that each page of a scanned document has been captured before releasing the job to the destination.

- The scan and store function stores the document on the Document Server and emails a link to the recipient, allowing them to make the decision when to download the data.

WHAT WE WOULD LIKE TO SEE:

- A searchable PDF creation format that converts hard copy into structured electronic information is available only with the GlobalScan option.

- The Mixed Media mode should be more efficient. While a useful feature, it resulted in users spending a significantly longer time at the device compared to using the default auto setting.

- A single-pass, straight path duplexing scanner would reduce the curvature and stress placed on originals during scanning, resulting in more reliable scanning of delicate and tough originals plus offer more productive duplex scanning speeds versus the traditional reversing design used in the device.

- Faster scanning in High Compression PDF mode would give users the full benefit of the mode without sacrificing user productivity.

- The ability to delete and replace scanned pages with errors during the preview phase would further streamline ad hoc scanning carried out in the general office.

- The ability to scan directly to external storage devices such as USB memory sticks or SD digital camera cards would provide valuable ad-hoc hard copy to electronic capabilities in remote areas such as hotels, airport lounges, hotel business centers, and would be useful for mobile users without instant access to laptops or PCs.

- The ability to combine 1-bit and 8-bit scanning into a single batch would allow the color dropout utility and the more bandwidth friendly black 1-bit scanning to be intertwined with higher image capture 8-bit modes for images and illustrations.

- Multistreaming scanning would take full advantage of the added data capture benefit offered by the color scanning capability with the lower bandwidth and greater manageability of the monochrome scan functionality.

The Ricoh Aficio MP1350 enters a tough, aggressively fought market armed with an armada of user friendly features and design attributes.

As mentioned at the beginning of the report, the device can be considered both a high end front office device and as a production device destined for CRDs, quick printers and printshops.

In the configuration tested during this evaluation, which included the lower cost Ricoh designed controller, BERTL's evaluation had been focused on the front office environment.

In this scenario, user productivity is of paramount importance closely followed by ease of use and workflow flexibility. A unit of this type in the front office will be expected to be everything to everyone handling the walk up and desktop digital imaging demands of, in many instances, multiple departments.

The Ricoh Aficio MP1350 is admirably equipped to take on this demanding environment with a heady selection of finishing options, a large full color interface for fast, accurate data and job entry plus class-leading Web server technology and print on demand capabilities.

Scanning, already a strong point on the previous generation of Ricoh departmental MFPs, has been taken to the next level with color scanning and advanced PDF encryption and compression capabilities. This further expands the scanning capabilities of the device and ensures fast, efficient, and successful scanning. New features also include the Preview mode, allowing users to check scan images before they are sent to their final destination. Another new feature that BERTL appreciated seeing make an entrance onto Ricoh's headliner MFP products was the scan to URL function. This allows users to use email as the address medium (rather than trying to find a SMB or FTP route), but not send large files across to the mail server, which could create bottlenecks or worse still get rejected for being over the threshold that the IT administrator set up for the mail server. This is even more important when you consider the file sizes created during color scanning tasks.

There is still a way to go before the device can go toe to toe against production scanners at the higher end with single pass duplex scanning and ISIS driver support, just two of the factors that may put off service bureaus and high volume scanning environments from getting too excited.

Productivity, as expected, was performed at the high standard we have come to expect from Ricoh. Fast scanning into memory limits user waiting times, fast processing of a wide range of print jobs through the choice of PCL, PostScript, or RPCS drivers, and innovative print-on-demand capabilities allow commonly used jobs to be printed and rerouted at the touch of a button. There is no need for repeat processing.

Security is well catered to with a diverse range of features designed to make the device a good network security citizen, to allow for efficient auditing and control of user access, and to maintain privacy of confidential information through the device. As with all devices, there are areas in which security can be further enhanced, including the disguise of a secure print job name during its output phase and integrating personal digital certificates with active directory personal profiles.

Those concerned with accessibility and Section 508 compliance will find the large tilting arm-mounted touch screen to be easy to reach and view from a wheelchair. Paper drawers are now graspable from above and below. We would like to see a remote terminal or voice guidance system, which would provide greater accessibility capabilities for the visually impaired who cannot use the non-tactile touch screen.

As with many Ricoh devices we have tested recently, many of the 'What we would like to see' comments are features that are not found on any device currently in the market and are not criticisms versus its peers, but are suggestions for how the next generation of product could be further enhanced. This reflects the changing market where user productivity is everything and is much more than a simplistic speed and feed buying decision.

The Ricoh Aficio MP1350 might have its weaknesses, but to many it will open up new doors of document productivity and is fully deserving of the special recognition a BERTL 5 Star status grants it.

About BERTL

The success of an organization depends on its ability to manage its information and assets. An effective workflow process requires the complex integration of information, devices, software, and people.

IT managers, office managers, and other knowledge management professionals need to know which digital imaging devices would best serve their specialized workflow processes.

BERTL's services are designed around this real-world framework, delivering business consumers the independent analysis and insight they need to make critical decisions about digital imaging's role in their organization.

Independent Analysis and Insight

BERTL's reports, comparative data, and strategic guides look at digital imaging through the eyes of the business user. The research examines not only the technical features, but also vertical market applications, and business benefits. The impact on worker productivity is a primary concern.

BERTL is 100 percent independent. It receives no funding from manufacturers and all product evaluations and reports are published at BERTL's own expense for its subscribers. Business users worldwide trust BERTL for objective, unbiased analysis of digital imaging systems.

BERTL Services

Reports and Star Ratings
BERTL analysts provide detailed reports on the technical and practical benefits of thousands of color and monochrome workgroup, office, graphic arts, and production devices.

Product Specifications
DataCheck Gen II provides the most current competitive data on printers, copiers, MFPs, fax devices, wide format printers, scanners, and more.

News, Interviews, and Analysis
The ITchat online magazine provides insight into the dynamics and trends of the digital imaging marketplace through interviews, feature articles, and software reviews.

BERTL Awards
BERTL analysts recognize the leading devices and software solutions in the annual BERTL's Best awards. BERTL also honors the performance of manufacturers in the annual Readers' Choice selections.

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